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Models and Theories of Executive Leadership: A Conceptual/Empirical Review and Integration

Stephen J. Zaccaro

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Several tables and figures in this report were adapted from other sources. In these cases, quotations and citations are from the original sources and not from this report.

The views, opinions, and/or findings in this report are not to be construed as an official Department of the Army position, unless so designated by other authorized documents.

Executive Summary

Research Requirements:

Executive leadership has been a long-standing concern of the U.S. Army. However, prior to 1980, much of the military research focused on generic dimensions of leadership or were specifically concerned with leadership at the lower grades.

Accordingly, in the early 1980s, the Army recognized a need for greater and more focused research on the nature of leadership at the brigade command level and higher. This interest parallels the increasing focus on top organizational leadership in the nonmilitary literature. As a consequence of this increased attention and interest, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) started a program of research, under the direction of T. Owen Jacobs, that focused on the nature and determinants of effective military executive leadership. The mission of this research was "to develop and test concept materials for doctrine development at the executive level, formulate an executive development system, and formulate and test methodology for restructuring Army organizations to achieve gains in productivity, effectiveness, and esprit" (Johnson, 1987, p. v).

This mission has resulted in an extensive research program that has focused on several themes. The first was the nature of executive-level work within the Army, and particularly how work and performance requirements changed across organizational levels. A second theme was the identification of individual capacities, knowledge, skills, abilities, and other qualities that were associated with the successful completion of executive work requirements. If the nature of leadership performance requirements change at different executive or organizational levels, then the requisite individual qualities should also change. A third theme was the development of measurement technologies to assess individual characteristics identified as necessary for effective executive leadership. The fourth, and perhaps most important, theme was the formulation

of both targeted and system-wide developmental interventions and technologies to facilitate the acquisition of requisite executive leadership skills.

After approximately 10 years of research centered around these major themes, there is a need to evaluate the advances and contributions made to an understanding of executive leadership and its development. Accordingly, the purpose of this report is to review military and nonmilitary research on executive leadership. Its objectives are (a) to describe and critically analyze both leading conceptual models of, and empirical research on, executive-level leadership according to several *a priori* criteria; (b) to synthesize military and nonmilitary research to determine what is known about executive leadership; and, finally (c) to identify some necessary future directions for research in this area.

Findings:

This report examines several leading conceptual models that focus on the nature and requisite personal characteristics of executive leadership. A survey of leadership research from different disciplines (e.g., psychology, public administration, strategic management) suggested four major conceptual perspectives of organizational leadership in the extant literature: (1) *conceptual complexity*, (2) *behavioral complexity*, (3) *strategic decisionmaking*, and (3) *visionary or inspirational leadership*. Each approach, with its corresponding empirical research base, is the subject of different chapters in this report. Each conceptual model was reviewed according to several criteria. Some of these criteria were proposed by Day and Lord (1988) for a systematic theory of executive leadership while others were developed for this report to reflect particular interests and concerns of the U.S. Army. The empirical research bearing on hypotheses and postulates developed from each conceptual framework was also evaluated to determine the degree of validation for these models in the extant literature.

Chapter 1 presents a definition of executive leadership as *that set of activities directed toward the development and management of the organization as a whole, including all of its subcomponents, to reflect long-range policies and purposes that have emerged from the senior leader's interactions within and interpretations of the organization's external environment.*

This definition emphasized both the internal and external focus of top executive leaders and is common to most, if not all, of the conceptual perspectives of such leadership (although different models will vary in the emphasis they place on internal versus external functions). Chapter 1 also contains an overview of generic executive leadership functions, empirical support for the premise that executive leadership is a critical determinant of organizational performance, and an overview of the conceptual models to be examined in the remainder of the report. In addition, this chapter includes the criteria for the evaluation of conceptual and empirical research in latter chapters.

Chapter 2 presents a summary and conceptual evaluation of conceptual complexity models of executive leadership. A basic premise of such models is that organizational executives operate within increasingly complex environments, characterized by greater information-processing demands and by the need to solve more ill-defined, novel, and complex organizational problems. To thrive, executive leaders require significant conceptual capacities that allow them to make sense of and navigate successfully within such complex environments. Two theories based on this premise are reviewed in this chapter: Stratified Systems Theory and Interactive Complexity Theory. A review of the central elements of these theories, particularly Stratified Systems Theory, indicates that they reflect several of the prescriptions offered by Day and Lord (1988) for an appropriate theory of executive leadership.

Chapter 3 contains an empirical evaluation of military and nonmilitary research bearing on several postulates derived from the conceptual complexity models of executive leadership. This review indicates a significant amount of empirical support for

proposed qualitative differences in performance requirements of lower versus executive-level leaders. Further, evidence has accrued, primarily from research with nonmilitary samples, that executive conceptual capacities are associated with organizational performance. However, postulates derived from the conceptual complexity models regarding measurement and leader development require further empirical validation. Also, more research with military samples is necessary to provide evidence for the applicability and generalizability of these models in military domains.

Chapters 4 and 5 provide a conceptual and empirical review, respectively, of behavioral complexity models. The emphasis in such models is on the multiple roles and corresponding behavioral patterns required of senior leaders. Examples of behavioral complexity models reviewed in these chapters are Mintzberg's (1973, 1975) classification of managerial roles, Tsui's (1984a, 1984b) multiple constituency framework, and Quinn's (1984, 1988) competing values framework. The basic premise of these approaches is that because senior leaders deal with multiple constituencies that make different demands of them, they are required to display different behaviors to be effective across a variety of situations. Also, these requirements can result in the senior leader having to balance competing behavioral patterns. One example of such balance by effective executives is mentoring and developing subordinates while at the same time being task focused and directive regarding organizational goals and objectives. The review summarized in Chapter 4 indicates that behavioral complexity models offer an important mechanism by which executives influence organizational performance (i.e., through their effective display and balance of multiple organizational roles). Empirical findings reviewed in Chapter 5 support the efficacy of this mechanism. However, these models do not clearly specify cross-level differences in organizational leadership requirements, nor do they clearly delineate the individual capabilities that foster behavioral complexity.

Chapters 6 and 7 examine strategic decisionmaking models of executive leadership. Such models argue that organizational

effectiveness emerges from an appropriate fit between the organization and its environment and that the role of senior organizational leaders is the analysis, creation, and management of this fit (Bourgeois, 1985; Lawrence & Lorsch, 1967; Thompson, 1967; Wortman, 1982). The strategic management functions of executives include scanning of the organization's environment and subsequent analysis of problems and opportunities, the formulation of policies and strategies from this analysis, the implementation of these policies within the organization, and the evaluation of policy consequences given organizational conditions (Wortman, 1982). The conceptual review in Chapter 6 indicates that strategic decisionmaking models have focused almost exclusively on upper level organizational leadership, without articulating how performance functions differ for leaders across organizational levels. There is also less emphasis on measurement and leader development than in conceptual complexity or even behavioral complexity models. However, they offer a richer perspective of normative strategic planning and decisionmaking than other executive leadership models.

Chapters 8 and 9 review the conceptual and empirical literature regarding theories of inspirational leadership, which subsume a number of different approaches related to charismatic, transformational, and visionary leadership. A common theme across these theories is that leaders develop a vision that is used to structure and motivate collective action. Furthermore, considerable emphasis is placed on the empowerment and development of subordinates (Bass, 1985). Multiple theories of inspirational leadership may differ on several particulars regarding the role of vision, the external versus internal focus of senior leaders, and empowerment as a key focus; however, they all share an emphasis on inspiring followers in accordance with a specified organizational direction. Visionary models of leadership have offered a number of individual characteristics that enhance a leader's capacity to formulate and implement an organizational vision. These include cognitive abilities (i.e., creativity, reasoning skills, intelligence, verbal ability, cognitive complexity), self-confidence, socialized power motives, propensity for risk, and social and nurturance skills. The reviews in Chapters 8 and

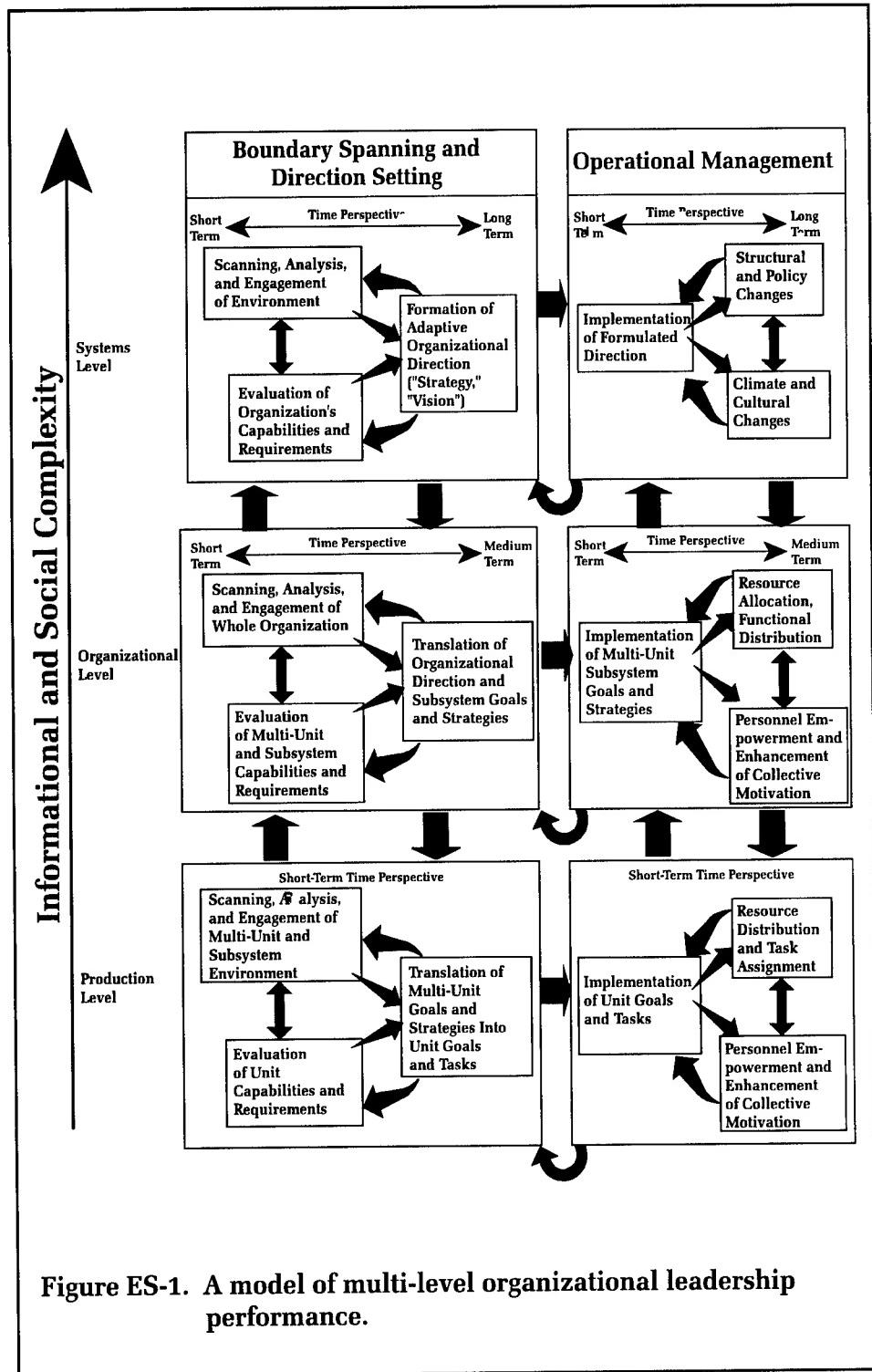


Figure ES-1. A model of multi-level organizational leadership performance.

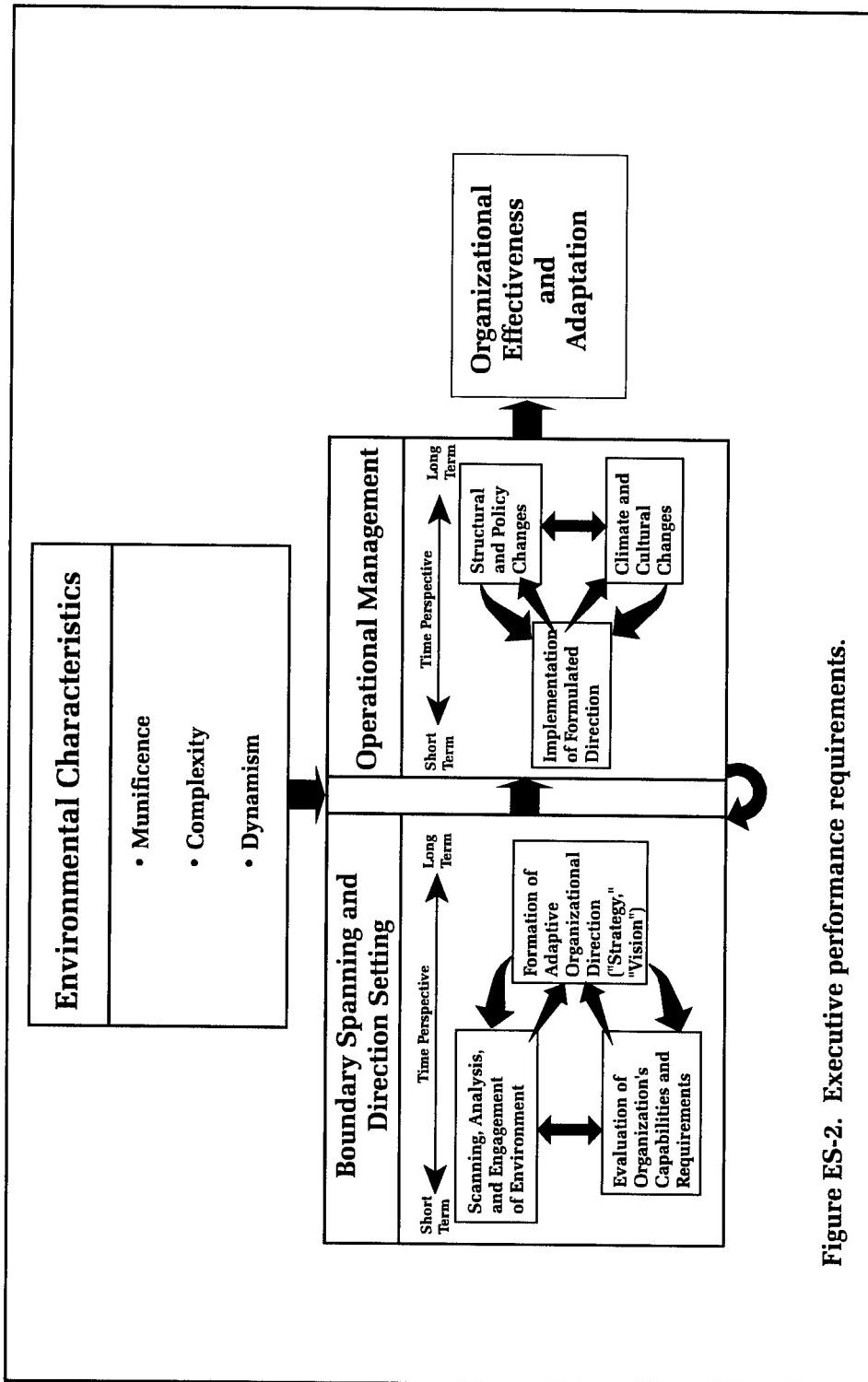


Figure ES-2. Executive performance requirements.

Table ES-1. Requisite Executive Characteristics**Cognitive Capacities and Skills**

Intelligence
Analytical reasoning skills
Flexible integrative complexity
Metacognitive skills
Verbal/writing skills
Creativity

Social Capacities and Skills

Social reasoning skills
Behavioral flexibility
Negotiation/persuasion skills
Conflict management skills

Personality

Openness
Curiosity
Self-discipline
Flexibility
Risk of propensity
Locus of control

Motivation

Need for achievement
Need for socialized power
Self-efficacy

Expertise and Knowledge

Functional expertise
Social expertise
Knowledge of environmental elements

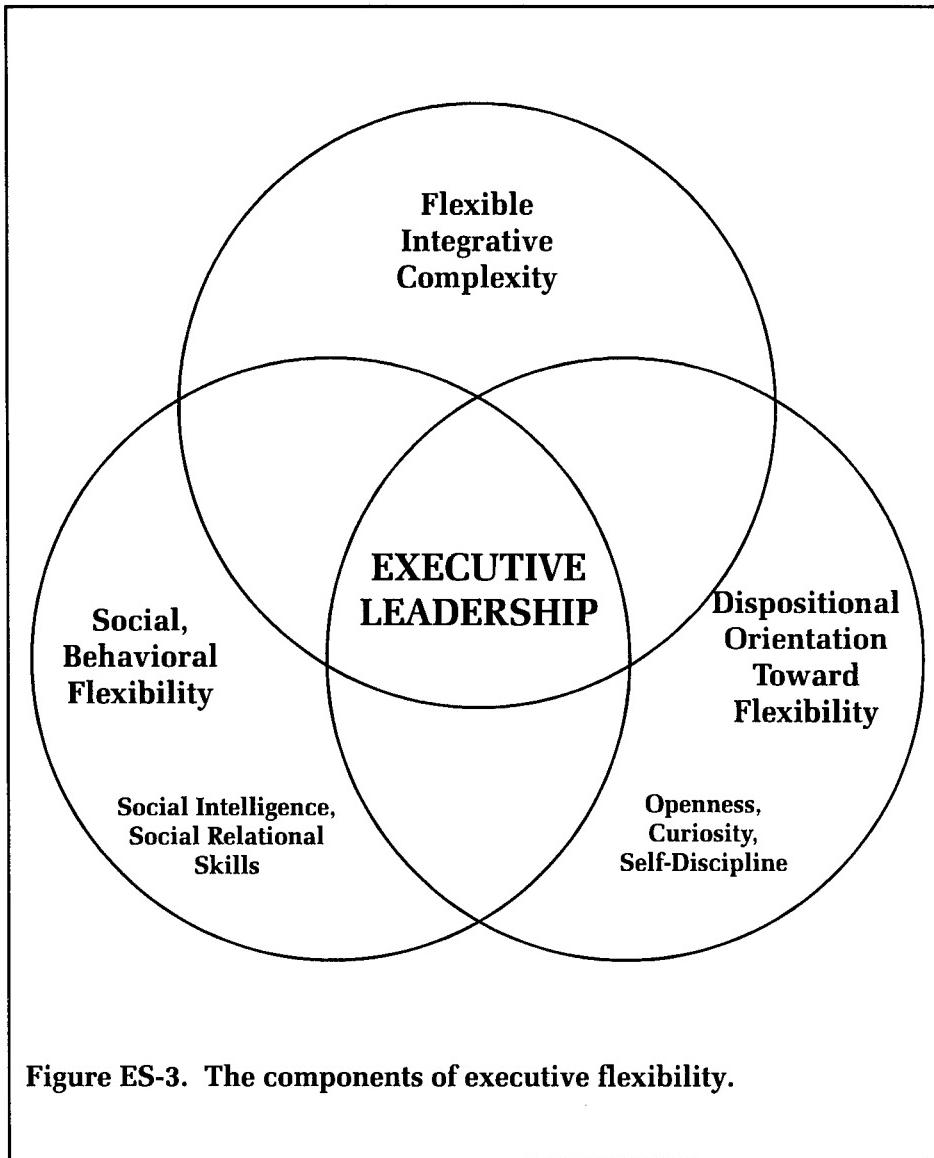


Figure ES-3. The components of executive flexibility.

9 indicate that the inspirational leadership models vary in terms of whether they specify functions that are particular to executive leaders; some models argue that visionary or transformational leadership can occur at all levels of the organization. Some empirical evidence exists for this viewpoint. Also, empirical support has accrued supporting the proposed link between particular individual characteristics and the display of inspirational leadership.

The intended outcome of the critical review and evaluation of these conceptual models was a synthesized or integrated model that should provide the basis for further research in this area. Such a model was presented in Chapter 10 and is shown in Figure ES-1. This model indicates cross-level differences in organizational leadership requirements. Figure ES-2 displays an elaborated model of executive level requirements. Individual qualities that were suggested by existing conceptual and empirical research as fostering effective executive leadership are shown in Table ES-1. A central argument presented in Chapter 10 is that executive flexibility is a critical aspect of organizational effectiveness. Such flexibility emerges from an integrated constellation of cognitive, social, and dispositional qualities. This constellation is illustrated in Figure ES-3. Three general sets of individual qualities are portrayed: behavioral flexibility, flexible integrative complexity, and flexibility as a dispositional or personality characteristic. The overlapping circles in this model represent the premise that effective executive leadership emerges in part from the *joint* influence of these qualities. That is, these characteristics are not considered entirely additive or independent in their influence on executive leadership.

Chapter 10 concludes with several recommendations for future military-based research on executive leadership. These recommendations are:

- Research on military executive leadership should focus on (a) the identification of particular social competencies that facilitate the successful accomplishment of executive performance requirements; (b) the development of validated measures that assess these competencies; and (c) the construction and validation of executive developmental and training interventions that target these competencies.
- Research should be directed at the measurement of the mental models and cognitive maps developed by military executives. Such research efforts should also examine how these cognitive structures are related to executive action and organizational performance.

- Research should be directed at (a) the nature of leader direction-setting in military units; (b) how such direction-setting changes at multiple organizational levels; and (c) how leader direction is translated into effective collective action.
- Research should be directed at investigating the influence of relatively rapid military leader succession on executive leadership processes and outcome.
- Research on military executive leadership should include an examination of top management team processes and characteristics.
- A greater proportion of research on military executive leadership should be completed using multivariate methodological strategies.
- Research should continue on the identification and validation of measures that assess military executive effectiveness.
- Research on the measurement of military executive leadership competencies should focus on the use and validation of constructed response tasks.
- Research on Army executive development should explore the validity and utility of “stretch assignments” in fostering growth in requisite executive competencies. These assignments should be grounded in an integration of school-based instruction and unit command responsibilities.

Kimmel's (1981) review of executive leadership research, conducted approximately 15 years ago, indicated a significant body of research on such leadership, although this research was quite small, quantitatively, in comparison to the bulk of research completed on leadership as a whole. The present report and its reviews of conceptual and empirical research demonstrate the tremendous interest in leadership at the top of the organization that has burgeoned since 1980. There are now multiple conceptual models of executive leadership along with a growing empirical research base that supports several theoretical

postulates derived from these models. Promising assessment strategies used to measure requisite executive characteristics are being developed and validated. Finally, several conceptual perspectives of executive leader development are beginning to converge on a common framework. All of these efforts portend significant advancements in the study of executive leadership in the near future.

A significant portion of this research base, particularly in terms of conceptual development, has been sponsored by ARI. The Army and ARI recognized the importance of executive leadership research early and devoted resources to its study. The result has been a strong conceptual framework that reflects several of the prescriptions for an executive leadership theory proposed by Day and Lord (1988), as well as a promising assessment tool that may predict executive leadership potential better than most other measures (Stamp, 1988). However, additional progress is likely to emerge from (a) an integration of Stratified Systems Theory with other conceptual perspectives outlined in this report; (b) the empirical validation of the variables and linkages described in several research framework models presented in Chapters 3, 5, and 10; and (c) the development of multiple assessment strategies that reflect a wider range of executive characteristics. The incorporation of these and other recommendations offered in this report is likely to fuel growth in executive leadership research comparable to that experienced over the past 15 years. The results should be a better and more thorough understanding of the dynamics, processes, and products of military executive leadership and its development.

Chapter 1

The Nature of Executive Leadership: An Introduction

BACKGROUND

An important premise in organizational science is that the quality of an organization's top leaders is a critical influence on its overall effectiveness and continuing adaptability (Katz & Kahn, 1978). Senior leaders are expected to adopt a long-term perspective of the organization within its environment as well as to develop short-term goals and strategies that are congruent with this perspective. In their planning and exertion of social influence, senior leaders are also required to balance a myriad of typically conflicting constituencies, demands, goals, and requirements, both within and outside the organization. When leaders accomplish these tasks successfully, their organizations are likely to be performing well and in a position to adapt quickly to environmental dynamics. In other words, high-quality senior leaders contribute presumably significantly to the vitality of their organizations.

Executive leadership has been a long-standing interest of the U.S. Army. However, prior to 1980, much of the military research focused on generic dimensions of leadership or was specifically concerned with leadership at the lower grades. Indeed, an annotated bibliography summarizing 135 references on senior leadership from 1916 to 1981 (Kimmel, 1981) reported only 37 military studies. Accordingly, in the early 1980s, the Army recognized a need for greater and more focused research on the nature of leadership at the brigade command level and higher. Some particularly critical concerns were the identification of leader performance requirements, requisite skills, and developmental interventions targeting those skills. As a consequence of this recognition, the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) started a

program of research, under the direction of T. Owen Jacobs, that focused on the nature and determinants of effective military executive leadership. The mission of this research program was "to develop and test concept materials for doctrine development at the executive level, formulate an executive development system, and formulate and test methodology for restructuring Army organizations to achieve gains in productivity, effectiveness, and esprit" (Johnson, 1987, p. v).

This research program focused on several themes. The first was the nature of executive-level work within the Army, and particularly how work and performance requirements changed across organizational levels. A second theme was the identification of individual capacities, knowledge, skills, abilities, and other qualities that were associated with the successful completion of executive work requirements. If the nature of leadership performance requirements change at different executive or organizational levels, then the requisite individual qualities for effective leadership at each level should also change. A third theme was the development of measurement technologies to assess individual characteristics identified as necessary for effective executive leadership. The fourth, and perhaps most important theme, was the formation of both targeted and system-wide developmental interventions and technologies to facilitate the acquisition of requisite executive leadership skills.

PURPOSE OF THIS REPORT

The present report grew out of a need to evaluate the approximately 10 years of research that has emerged around these major themes. More broadly, it is necessary at this point to aggregate and examine what we know about executive leadership and its development. Accordingly, the purpose of this report is to review both military and nonmilitary research on such leadership. Its objectives are (a) to describe and critically analyze leading conceptual models of, and empirical research on, executive-level leadership according to several specific criteria; (b) to synthesize military and nonmilitary research to determine what is known about executive leadership; and, finally (c) to

identify some necessary future directions for research in this area.

This report examines several leading conceptual models that focus on the nature and requisite qualities of executive leadership. The conceptual models are reviewed using criteria proposed by Day and Lord (1988) for a systematic theory of executive leadership as well as other criteria developed to reflect particular interests and concerns of the U.S. Army. These criteria will be described later in this chapter. Empirical research on both military and nonmilitary samples is examined with the goal of integrating these two databases. The purpose of this empirical review is to evaluate the conceptual frameworks developed with respect to executive leadership, in particular to ascertain what parts of them have received significant validation. Given the recent vintage of most executive leadership models, it is probable that empirical examinations are incomplete. Nonetheless, enough research is available to begin to evaluate the potential of these models.

The outcome of this critical review and evaluation is a synthesized or integrated model that should provide the basis for further research in this area. This need for a synthesis of senior leadership research is reflected in other recent efforts (e.g., Hunt, 1991; Lord & Maher, 1993; Phillips & Hunt, 1992). This report, however, includes a systematic analysis and evaluation of empirical research within the context of specific conceptual models and is focused on military executive leadership. Researchers associated with each of the conceptual models reviewed in this report argue for the generalizability of their principles of executive leadership across different organization types. This is ultimately an empirical question. However, there are systematic differences between military and other types of organizations that may moderate the kinds of relationships proposed between antecedents and consequences of executive leadership. Such differences can be illuminated in a direct comparison of military and nonmilitary studies that examine similar questions about executive leadership.

The remainder of Chapter 1 covers five topics. The first is a brief examination of qualitative differences in leadership across

organizational levels, followed by a definition of senior leadership. A basic premise of all the conceptual models described in this report is that senior leadership is qualitatively different from junior leadership. Therefore, I offer a description of the functions and nature of senior leadership as a starting point. Although this definition may be at variance with one or more of the other approaches described in this report, a significant degree of consensus does exist regarding the nature of such leadership.

There is not universal agreement in the leadership literature on the point that senior leaders are indeed important for organizational effectiveness. Thus, a third topic in this chapter is a brief review of the evidence that senior leaders are critical contributors to organizational performance. It is necessary to establish such evidence to justify a considerable effort being directed at understanding top organizational leadership.

As previously described, this report reviews several conceptual models of executive leadership and the empirical research that has been derived from or is relevant to these models. A description of the criteria used to evaluate both the extant conceptual models and their corresponding empirical bases is presented in this chapter. Finally, Chapter 1 concludes with a brief description of the major conceptual approaches to senior leadership that are reviewed and analyzed in subsequent chapters.

QUALITATIVE DIFFERENCES IN ORGANIZATIONAL LEADERSHIP: A BRIEF LOOK

Leadership has been a major topic in organizational science for almost a century and has spawned literally thousands of empirical and conceptual studies. A surprising conclusion from a survey of this vast research is that relatively little of it has focused explicitly on leadership at top organizational levels. Such leadership has been called "senior" leadership (Heller, 1972; Kimmel, 1981), "executive" leadership (Barnard, 1938; Carlson, 1951), or "strategic" leadership (U.S. Army, 1993; Hambrick, 1989; Phillips & Hunt, 1992). An annotated

bibliography of senior leadership research completed by Kimmel (1981) lists 135 entries from both the military and nonmilitary literatures. Less than half, or 64 studies, were specified as empirical research. While these numbers of studies are not insignificant, note that Stogdill's (1974) comprehensive *Handbook of Leadership* contained about 3,000 references about leadership in general, while Bass's (1990) third edition of this handbook listed approximately 7,500 citations. An admittedly crude comparison of these sources would suggest, then, that roughly only 2% to 5% of the general literature on leadership has been directed specifically toward top organizational leaders! This observation was echoed fairly recently by Day and Lord (1988) who stated, "the topic of executive leadership . . . has not been a major concern of leadership researchers or theorists. Their focus has been primarily lower level leadership" (p. 458).

Why have leadership researchers generally neglected the topic of executive leadership? One reason may be that quality empirical research with such leaders is prohibitively difficult to accomplish. First of all, there are simply more junior leaders than senior leaders with which to conduct research. One or two large-size corporations can probably provide a sample large enough for most empirical research requirements; a comparable sample of executive leaders, however, would require sampling from many organizations. Another obstacle is that few executives are probably willing to devote the significant amount of personal time that is often necessary to complete such research. Also, identifying the consequences of senior leadership for organizational effectiveness requires the measurement of variables that can often be gained only through an archival or historical analysis of organizational performance (Day & Lord, 1988). These analyses are typically used in executive succession studies, where the effects of executive leadership are examined on such variables as organizational change (e.g., Miller, 1993), returns on assets, sales, and/or equity, respectively (e.g., Dalton & Kesner, 1985; Halebian & Finklestein, 1993; Zajac, 1990), and stockholder reactions (e.g., Lubatkin, Chung, Rogers, & Owers, 1989). However, this approach can be quite problematic when the researcher's intention is to associate such outcomes with measures of psychological constructs reflecting executive

characteristics (e.g., personality, cognitive skills, motivational orientation) because these constructs are exceedingly difficult to assess from archival and historical records (see House, Spangler, & Woycke, 1991, as an example of this kind of research). Indeed, a recent review of 30 years of executive succession research reported very few, if any, multivariate studies that examined a range of psychological constructs in the context of executive succession (Kesner & Sebora, 1994).

Finally, the criteria for executive leadership are likely to be qualitatively different than those for lower level leadership. While the effects of leadership can often be assessed fairly directly with measures of unit performance, subordinate attitudes, and leader promotion rate, the outcomes of executive leadership are often manifested at a point in time more remote from a leader's action than at lower organizational levels (Jacobs & Jaques, 1987). Thus, the association between action and consequence at the top of the organization is likely to be more indirect or ambiguous, and therefore more difficult to observe. This fact constrains, for example, a demonstration that certain constellations of executive skills are significantly associated with indices of executive performance.

Nevertheless, as shown by Kimmel (1981), these obstacles have not precluded at least some level of research on senior leadership. Instead, the primary focus of prior leadership theories on lower level leadership may be attributed to the possibility that such theories have implicitly assumed that explanations and causal models of junior leadership pertain equally well to senior leadership. Yet, as Day and Lord (1988) argued, "applying leadership theories developed at lower levels to explain leadership at upper levels assumes a construct isomorphism across levels that is probably not true" (p. 459).

Qualitative Differences

Accordingly, several leadership theorists have proposed qualitative differences in the nature of leadership across organizational levels. For example, Katz and Kahn (1978) specified three distinct patterns of organizational leadership.

The first pattern concerns the administrative use of existing organizational structures to maintain effective organizational operations. If problems arise to disrupt these operations, existing organizational mechanisms and procedures are utilized to resolve these problems. Indeed, Katz and Kahn note that "such acts are often seen as so institutionalized as to require little if any leadership" (p. 537). This leadership pattern occurs at lower organizational levels; it requires of such leaders technical knowledge, understanding of organizational rules, policies, and procedures; and the equitable use of coercive and reward power. The second leadership pattern involves the embellishment and operationalization of formal structural elements. Such actions are the province of midlevel organizational leaders and require a two-way orientation by the leader (i.e., toward both superiors and subordinates) as well as significant human relations skills. The third pattern of organizational leadership concerns structural origination or change in the organization as a reflection of new policy formulations. Katz and Kahn argue that this leadership pattern occurs at the top echelons of the organization and, in terms of leader abilities and skills, requires a system-wide perspective and a high level of personal charisma. Taken together, the distribution of separate leadership patterns across organizational levels that was proposed by Katz and Kahn suggests significant qualitative differences between the nature of junior and senior leadership.

Such qualitative differences between upper and lower level organizational leaders were also proposed in separate theoretical formulations by Jacobs and Jaques (1987); Mumford, Zaccaro, Harding, Fleishman, and Reiter-Palmon (1993); and Bentz (1987). Jaques and Jacobs theorized that the nature of leadership work changes across organizational levels such that senior leaders are more responsible for institutional adaptation within the broader organizational environment, and are operating with longer work or task time frames and greater individual discretion. Mumford, Zaccaro et al. (1993) proposed that as individuals ascend organizational levels the number of groups and subsystems they are responsible for expand; accordingly, they must account for more organizational units when solving organizational problems. Further, at higher organizational levels, the problems confronting

organizational leaders become more ill-defined and more susceptible to environmental buffeting. Thus, according to Mumford, Zaccaro et al. (1993), the nature of leader problem solving and requisite influence patterns change significantly across organizational levels. Along similar lines, Bentz (1987) argued that (a) the breadth of business units that must be managed and coordinated (i.e., "scope"), as well as (b) the "internal complexity, diversity, and ambiguity of functions within and across units managed, within and across varieties of personal relations, and across decision made" (i.e., "scale," pp. 1-2) increase dramatically for executive leaders.

Most current theories of leadership propose generic conceptual models that apply across organizational levels; or they restrict their focus to lower level leadership. The expositions by the aforementioned theorists and researchers of changes in leader performance requirements across organizational levels suggest that these current approaches are limited at best and highly misleading at worst. There is a need for more systematic theories of executive leadership that recognize these qualitative differences. Indeed, Day and Lord (1988) wrote

We strongly urge researchers and theorists interested in leadership to consider upper levels of management as an important practical domain that needs theoretical and research attention. We believe the opportunity exists for the development of innovative and practically relevant leadership theory and research (pp. 458-459).

Recent Trends

Recent trends in the leadership literature suggest that greater attention is indeed being directed toward understanding the unique properties of senior organizational leadership. For example, a major topic of leadership research in the 1980s and 1990s has been charismatic or transformational leadership. While some researchers have argued that such leadership can occur at all organizational levels (Bass, 1985), the focus of description in various conceptual models of inspirational leadership is clearly on individuals at the top of the organization

(e.g., House, 1977; Sashkin, 1988a, 1988b; Tichy & DeVanna, 1986a, 1986b). Another major research topic that has emerged over the past 10-15 years is the characteristics and influence of top management teams (TMTs), (e.g., Finkelstein, 1992; Finkelstein & Hambrick, 1990; Hambrick, 1994; Hambrick & Mason, 1984; Sutcliffe, 1994; Wiersema & Bantel, 1992). Here, research is being completed that examines how the demography and processes of TMTs influence organizational climate, strategies, and performance. Finally, the increase in interest on top organizational leadership is shown in Yukl's (1994) most recent edition of his leadership textbook; in particular, a new chapter has been added from earlier editions that summarizes research on "strategic leadership by top executives." This increased attention supports the premise that there is something "different" about executive leadership, which prompts the more focused question of what is the nature of such leadership.

WHAT IS EXECUTIVE LEADERSHIP?

One of the earliest treatises on the definition and nature of senior leadership was offered by Barnard (1938), who described the functions of organizational executives. Barnard argued that organizations emerged when individuals agree to coordinate their activities in a collective effort to achieve a common purpose. Organizations derived their vitality from the participants' willingness to cooperate for a collective purpose and from the quality of communication among participants that further this cooperation. This collective purpose provides the "coordinating and unifying principle" for the organization (Barnard, 1938, p. 95). From this theory of formal organization, Barnard articulated the functions of executives to be related to "all the work essential to the vitality and endurance of an organization, so far, at least, as it must be accomplished through formal coordination" (p. 215).

A prominent element in this definition is the executive's responsibility to ensure that the organization "works correctly" in the accomplishment of its purpose. Accordingly, Barnard (1938, p. 215) noted that "executive work is not that of the organization, but the specialized work of *maintaining* the

organization in operation." Because organizations are grounded in interpersonal cooperation around a collective purpose, as well as in communication systems that further this cooperation, specific executive functions become (a) the definition of organizational purpose, (b) the elicitation of personnel willing to cooperate in accomplishing this purpose, and (c) the institution of a communication system that fosters organizational cooperation. Executives are placed by responsibility at the critical nexus of this communication system.

The description of executive leadership by Barnard (1938) provided two major elements that have become consistent themes in subsequent conceptual models distinguishing such leadership from junior organizational leadership. First, senior leadership involves the coordination and maintenance of the organization as a whole, including all of its subcomponents. Barnard's overarching theme of coordination around a purpose suggests that executive leaders are responsible for orchestrating and managing the integration of these multiple subcomponents so that they work in synchrony to achieve the directions established by the executive.

The definition by executives of an organization's purpose and direction is the second major theme of Barnard's work. Executives establish purpose, which is then implemented through various organizational levels. At each descending level, this purpose becomes operationalized in terms of more specific goals and tasks that operate within increasingly shorter time frames. This collective arrangement follows from the commitment of subordinates to an executive's formulated direction and from their cooperation in instituting this direction. This aspect of executive leadership; i.e., the definition and institution of organizational purpose, together with the aforementioned role of organization-wide management, has remained central to most, if not all, conceptions of senior leadership to the present.

Barnard's (1938) emphasis regarding executive leadership functions was predominantly on the executive's internal maintenance and directional focus of the organization. A theme regarding senior leadership that has emerged since this early

treatise is an emphasis on leadership as *boundary management*. This perspective was articulated most clearly by Katz and Kahn (1966, 1978), who viewed organizations as open systems that were inextricably connected with their environments through their acquisition of requisite organizational resources and the distribution of finished organizational products. Indeed, an organization's survival depends in large part upon how well its constituted structure is adaptive to the characteristics of the embedding environment. Further, several organizational subsystems, such as marketing, sales, and research and development, are established primarily for the purpose of facilitating the organization's interaction with and adaptation to this environment. While Katz and Kahn agreed with Barnard that a major role of senior leadership is to maintain and enhance the internal and interpersonal dynamics of an organization, they also argued that, "leadership emerges as individuals take charge of relating a unit or subsystem to the external structure or environment" (1978, p. 532). That is, leaders are tasked with the responsibility of maintaining and managing organizational boundaries, and particularly the organization's external dynamics and interactions (Gilmore, 1982).

Katz and Kahn (1978) did not limit such boundary management to senior leaders. At lower organizational levels, junior leaders are managing the boundary between their units and the larger organizational system. What, then, is different about senior leadership? First, the boundary-spanning activities of the senior leader, as opposed to those of his or her more junior counterparts, incorporate the interactions of the organization as a whole with its external environment. This introduces a qualitative change in complexity from boundary spanning within the organization because external environments are typically characterized by much more dynamism and novelty than is likely in most internal organizational environments. Further, in their interactions within larger environments, senior leaders are balancing the demands and requirements of multiple organizational constituencies, whereas junior leaders are typically concerned with the requirements of single units. For example, the university president who must lobby a state legislature for annual appropriations often needs to prioritize the

demands of several university groups in his or her arguments. Within the university, however, department leaders are typically focused only on the requirements of their section.

Katz and Kahn (1978) noted that this external focus of the senior leader is also characterized by an orientation toward environmental opportunities that may allow the organization to enhance its position and viability within its environment. A major senior leadership function that emerges from the leader's external boundary spanning is the introduction of organization-wide policies and structural changes that are intended to increase the organization's adaptiveness to its environment. Indeed, Katz and Kahn argued that "except in democratically constituted systems, only the top echelons of line and staff officers are really in a position to introduce changes in structure" (p. 537). Note that while this internal change, development, and incorporation of organizational structure resembles Barnard's (1938) executive functions, Katz and Kahn derived these activities from the senior leader's primary responsibility for boundary management between the organization and its environment. That is, the origination and constitution of structure are driven by contingencies, demands, and opportunities within the organization's environment.

Most current models of senior leadership assume the two executive functions of boundary spanning and organization-wide coordination. For example, strategic decisionmaking and management theories define top leadership as involving the establishment of organizational strategy in accord with environmental conditions and the implementation of strategy within the organization (Hambrick, 1989; Hambrick & Mason, 1984). Charismatic and transformational leadership theories emphasize the motivation and organization of subordinate effort in line with established purposes and direction (Bass, 1985, House, 1977). Conceptual complexity theories describe the articulation of organizational purpose from increasingly long time spans regarding the organization and its environment (Jacobs & Jaques, 1987, 1990, 1991). Finally, behavioral complexity theories emphasize the requirements of senior leaders to coordinate the demands and requirements of multiple

constituencies in accord with organizational purpose (Hart & Quinn, 1993; Quinn, 1984, 1988; Tsui, 1984a, 1984b).

These executive functions have been adopted by the U.S. Army in its instructional materials to developing leaders. For example Army FM 22-103 (1987) defined senior leadership and command as

the art of direct and indirect influence and the skill of creating the conditions for sustained organizational success to achieve the desired result . . . In the final analysis, leadership and command at senior levels is the art of reconciling competing demands according to priorities activated by a clearly formed vision, implemented by a clearly communicated intent, and enforced by the toughness to see matters through (p. 3).

More recent instructional materials in the U.S. Army have begun to distinguish senior leadership from strategic leadership. For example, Army Regulation 600-100 (1993) defines senior leaders as those who “tailor resources to organizations and programs and set command climate . . . senior leaders focus on midrange planning and mission accomplishment ranging from one to five years, or more” (p. 1). On the other hand, strategic leaders are those that “establish structure, allocate resources, and articulate strategic vision . . . Strategic leaders focus on the long-range vision for their organization ranging from 5 to 20 years, or more” (p. 1). This distinction follows from Jacobs and Jaques’s (1987, 1990, 1991) Stratified Systems Theory, which specifies seven strata of organizational leadership. At the top stratum, the primary role of the strategic leader is predominantly externally focused, where such leaders are responsible for observing and interpreting the environment as well as influencing it on behalf of the organization. Leaders at the next lower strata are responsible for instituting and managing organizational change from a 1-5 year time frame, but in accord with a 5-20 year strategic vision set at the top stratum. Thus, Jacobs and Jaques placed greater emphasis on the more externally focused functions of top organizational leadership.

Taken together, these various contributions suggest that there is some consensus regarding the definition and nature of executive leadership. Accordingly, for the purposes of this report, such leadership is defined as

that set of activities directed toward the development and management of the organization as a whole, including all of its subcomponents, to reflect long-range policies and purposes that have emerged from the executive leader's interactions within and interpretations of the organization's external environment.

In this report, the terms "executive," "senior," and "strategic" will be used interchangeably to refer to the top level of organizational leadership and management.

This definition specifies both the internal and external systematic perspectives advocated by Katz and Kahn (1978) for upper echelon organizational leaders. It also assumes that top leaders are responsible for maintaining the vitality and adaptiveness of their constituent organizations in the context of shifting environmental demands and contingencies. Thus, senior leaders are viewed as critical determinants of organizational effectiveness. This is an assumption, however, that has been challenged by several organizational theorists, an issue examined in the next section.

DO EXECUTIVE LEADERS REALLY MATTER?

Calder (1977) argued that the influence of leadership is exaggerated and a product of attributional biases and implicit theories people have of the supposed role of leaders in society. Similar notions about the "romance of leadership" have been offered by Meindl and his colleagues (Meindl, 1990; Meindl & Ehrlich, 1987; Meindl, Ehrlich, & Dukerich, 1985). In the strategic management literature, there are two schools of thought on the limited role of top executives in organizational performance. One of these perspectives argues that organizational performance is strictly a function of environmental characteristics and contingencies (Aldrich, 1979; Bourgeois, 1984; Hannan & Freeman, 1977; Lawrence & Lorsch,

1967; Romanelli & Tushman, 1988). The other perspective suggests that organizational strategies and decisionmaking result, not primarily from the characteristics and dispositions of top leaders, but rather from prior organizational actions and the existing or predominant organizational culture (Miles & Snow, 1978; Starbuck, 1983).

Two widely cited executive succession studies have been offered in credence of the argument that senior leaders are not truly influential for organizational performance. Lieberson and O'Connor (1972) examined the effects of executive succession in 167 corporations across 13 industries and covering a 20-year time span. They compared executive succession with both immediate and 3-year changes in sales, earnings, and profit margins. The results of their analysis indicated that leadership accounted for 6.5% to 15.2% of the variance in immediate organizational outcomes, and 6.3% to 31.7% of variance in outcomes after a 3-year lag. Lieberson and O'Connor interpreted their results as showing that leaders contribute little to organizational performance beyond the effects of environmental factors. A similar conclusion was reached by Salancik and Pfeffer (1977) who examined mayoral change in 30 cities over a 18-year time span. After controlling for city and year, mayors explained between 5.6% and 10% of the variance in city income and expenditures. These percentages changed to between 4.9% and 24.2% when financial outcomes were computed relative to the total city budget.

After reviewing these studies, Day and Lord (1988) argued that the original interpretations by the authors were erroneous. They noted that even the 7.5% of variance in net income attributable to leadership that was reported by Lieberson and O'Connor (1972) was a substantial amount for most organizations. Further, when examining leadership effects over time (i.e., after a 3-year lag) and adjusting for effects of company size (by examining only profit margins as an organizational outcome), the variance attributable to leadership increased to 32%. Day and Lord noted a similar misinterpretation of the data from Salancik and Pfeffer (1977).

A number of other studies have provided convincing evidence for the impact of executive leaders on organizational performance. For example, Weiner and Mahoney (1981) examined executive succession effects in 193 companies across a 19-year time span. They reported that leadership accounted for approximately 44% of the variance in profit margins and 47% of the variance in stock prices. Barrick, Day, Lord, and Alexander (1991) used a linear decision-theoretic utility procedure to calculate the financial impact of leadership in 132 organizations over a 15-year period. Their results demonstrated substantial financial gain of an average executive's tenure to an organization, with a utility point estimate of more than \$25 million, after taxes.

Hitt and Tyler (1991) examined the influence of three sets of variables on organizational performance: industry characteristics, objective environmental criteria, and personal characteristics of top executives. The first two sets of variables were derived from strategic management theories that delimited the role of leaders in organizational performance (Aldrich, 1979; Bourgeois, 1984; Hannan & Freeman, 1977; Lawrence & Lorsch, 1967; Miles & Snow, 1978; Romanelli & Tushman, 1988; Starbuck, 1983), while the last set of variables was suggested by theories that argued for substantial influence of organizational executives (Child, 1972; Hambrick, 1989; Hambrick & Mason, 1984). Hitt and Tyler reported that after controlling for the influence of environmental and industry characteristics, the characteristics of senior leaders explained significant variance in acquisition decisions.

Taken together, these results argue for Hambrick and Mason's (1984, p. 194) assertion that "top executives matter." Given an obvious and consistent interest in improving organizational performance, these results provide a compelling rationale for the systematic investigation of executive leadership and particularly the factors that enhance the facilitative effects of such leaders on organizations. As noted earlier in this chapter, a number of researchers have followed Day and Lord's (1988) urging that more research be completed on the domain of senior leadership. Indeed, such research has burgeoned significantly from 1980 to the present (Yukl, 1994). The demonstrated

importance of senior leadership for organizational performance compels the investigation of the characteristics, determinants, and development of such influence. As noted earlier, there has been a recent surge in the number of studies on executive leadership. The purpose of this report is to review and critically analyze this research base in the context of several leading conceptual frameworks. In the next section of this chapter, the key questions and criteria that guide this critical analysis are presented.

KEY QUESTIONS REGARDING EXECUTIVE LEADERSHIP RESEARCH

Day and Lord (1988) offered several prescriptions and suggestions for evaluating systematic theories of executive leadership. First, a theory of executive leadership should specify the means and mechanisms by which executive leaders influence organizational effectiveness. In line with Barnard (1938) and Katz and Kahn (1966, 1978), Day and Lord suggested, for example, that leaders have impact on organizational performance by (a) influencing the external environment of the organization, (b) adapting the organization to environmental contingencies, and (c) shaping and managing the organization to increase its efficiency and adaptability. Each mode of influence can involve direct leadership influence tactics, such as political lobbying, strategic planning, and organizational role specification, as well as indirect tactics, such as organizational image building, envisioning, and production norm setting. These suggestions by Day and Lord indicate that executive leadership theories should specify the nature of executive influences on organizational processes to explain the unique contribution derived from activities of top organizational leaders.

A conceptual framework should provide answers to the following key questions regarding the *nature of executive leadership work* and its influence on organizational performance:

1. *How do executive leadership performance requirements differ from such requirements at lower organizational levels?*

2. Where do these performance requirements shift in quality across organizational levels?

3. How is leader effectiveness and influence defined and operationalized at different organizational levels?

4. What is the relationship between the accomplishment of executive performance requirements and organizational effectiveness?

The specification of the unique qualities of executive leadership facilitates the delineation of corresponding knowledge, skills, abilities, and other characteristics (KSAOs) that enhance effective accomplishment of such work. Day and Lord (1988) noted that executive leadership theories need to describe the individual differences that are associated with successful executive leadership. Specifically, two key points need to be addressed. First, such theories should denote the KSAOs that distinguish senior from junior leaders. These variables ought to be associated with promotions to upper organization leadership positions. Second, senior leadership models need to specify what individual qualities are associated with success at the executive level. Because the nature of leadership changes as one ascends the organizational hierarchy, the variables predicting success at lower levels and those predicting leadership promotion will be different from the critical individual constructs predicting effectiveness in senior leader roles.

These points suggest the following questions regarding *the nature of critical executive leader KSAOs* for this review:

5. What individual characteristics distinguish executive from lower level leaders?

6. What individual characteristics distinguish successful from unsuccessful executives?

Several particular measurement and methodological issues are critical to the study of senior leadership. Both sampling issues and the nature of relevant dependent variables change considerably when examining leadership across organizational levels. For example, the influence of successful senior

leadership is likely to be manifested over longer time frames than junior leadership. Accordingly, Day and Lord (1988) suggested more historical analyses that examine leader influence on organizational performance. Also, while measures of individual and single unit performance are appropriate as criteria at lower organizational levels, organization-wide outcomes, such as profitability, market share, and sales growth, are more appropriate criteria for the assessment of executive leadership. Thus, the empirical examination of hypotheses about such leadership ought not to depend simply on criteria that are more applicable to junior leadership. Finally, theories and models that specify the unique nature of senior leadership work, as well as particular senior leader skills and competencies, should also offer appropriate and psychometrically sound measurement strategies for assessing these constructs.

These issues suggest the following additional questions or criteria for this review:

7. *What are the psychometric qualities of measures that assess executive leadership characteristics and skills?*
8. *What is the quality of research methodologies and criteria used to assess theories and models of executive leadership?*

A functional outcome of well-specified models of senior leadership is that they can provide not only for the assessment of senior leadership potential, but also the basis for effective training and development of such leaders. Senior leader development is tied to one's progress in career and adult development, particularly in terms of the emergence of certain senior leader competencies. For example, Mumford et al. (1993) proposed that wisdom or complex social judgment skills are critical determinants of successful senior leader problem solving. The development of wisdom may be associated with the emergence of other complex thinking skills over a life span as well as to an array of experiences early in one's career. This suggests that senior leader development may be inextricably tied to adult and career development patterns. Effective theories of senior leadership should specify the framework of

developmental interventions that correspond to their key conceptual variables.

This suggests the final question for this review:

9. What developmental interventions have emerged from conceptual models of senior leadership and have been validated by empirical research?

Table 1-1 summarizes the key questions that guided the review and critical analysis of executive leadership research that is described in the remainder of this report. This research reflects several different conceptual perspectives. These perspectives are introduced in the final section of this chapter.

CONCEPTUAL PERSPECTIVES OF EXECUTIVE LEADERSHIP: AN OVERVIEW

A survey of leadership research from different disciplines (e.g., psychology, public administration, strategic management) suggest four major conceptual perspectives of executive leadership in the extant literature: *conceptual complexity, behavioral complexity, strategic decisionmaking, and visionary or inspirational leadership*. Each approach with its corresponding empirical research base is the subject of different chapters in this report.

A significant proportion of the research in the U.S. Army on senior leadership has proceeded from a common conceptual approach known as Stratified Systems Theory (Jacobs & Jaques, 1987, 1990; Jaques, 1986; Lewis & Jacobs, 1992). This approach is an example of a conceptual complexity model of executive leadership. A basic premise of such models is that organizations operate within increasingly complex environments. This environmental complexity results in the stratification of organizations where higher levels are characterized by greater information-processing demands and by the need to solve more ill-defined, novel, and complex organizational problems. To thrive, executive leaders require significant conceptual capacities that allow them to make sense of and navigate successfully within such complex environments. Thus, Stratified Systems

Table 1-1. Key Questions and Criteria for a Critical Analysis of Senior Leadership Research

1. How do executive leadership performance requirements differ from such requirements at lower organizational levels?
2. Where do these performance requirements shift in quality across organizational levels?
3. How is leader effectiveness and influence defined and operationalized at different organizational levels?
4. What is the relationship between the accomplishment of executive performance requirements and organizational effectiveness?
5. What individual characteristics distinguish executive from lower level leaders?
6. What individual characteristics distinguish successful from unsuccessful executives?
7. What measures should be used to assess executive leadership characteristics and skills?
8. What is the quality of research methodologies and criteria used to assess theories and models of executive leadership?
9. What developmental interventions have emerged from conceptual models of senior leadership and have been validated by empirical research?

Theory and related models (e.g., Markessini, 1991; Mumford et al., 1993; Streufert & Swezey, 1986) emphasize the complex nature of senior organizational leadership and the correspondingly complex conceptual capacities required of such leaders.

The emphasis in behavioral complexity theories is on the multiple roles and corresponding behavioral patterns required of senior leaders. The premise of such approaches is that because senior leaders deal with multiple constituencies that make different demands of them, they are required to display different behaviors to be effective across a variety of organizational situations. Also, these requirements can result in the senior leader having to balance competing behavioral patterns, such as mentoring or developing subordinates while at the same time being task-focused and directive regarding organizational production. Examples of behavioral complexity models of leadership include Mintzberg's (1973, 1975) classification of managerial roles, Tsui's (1984a, 1984b) multiple constituency framework, and Quinn's (1984, 1988) competing values framework.

Strategic decisionmaking models of executive leadership argue that organizational effectiveness emerges from an appropriate fit between the organization and its environment and that the role of senior organizational leaders is the analysis, creation, and management of this fit (Bourgeois, 1985; Lawrence & Lorsch, 1967; Thompson, 1967; Wortman, 1982). The strategic management functions of executives include scanning the organization's environment and subsequent analysis of problems and opportunities, forming policies and strategies from this analysis, implementing and interpreting these policies within the organization, and evaluating policy consequences given organizational conditions (Wortman, 1982). Characteristics of the executives that influence the quality of their strategic policy making include cognitive abilities, functional expertise and knowledge, motivational characteristics such as self-efficacy and need for achievement, and personality characteristics such as locus of control and risk propensity.

Theories of inspirational leadership subsume a number of different approaches related to charismatic, transformational, and visionary leadership. A common theme across these theories is that leaders develop a vision that is used to structure and motivate collective action. Furthermore, considerable emphasis is placed on the empowerment and development of subordinates (Bass, 1985). Multiple theories of inspirational leadership may differ on several particulars regarding the role of vision, the external versus internal focus of senior leaders, and empowerment as a key focus; however, they all share an emphasis on inspiring followers in accordance with a specified organizational direction. Visionary models of leadership have offered a number of individual characteristics that enhance a leader's capacity to formulate and implement an organizational vision. These include cognitive abilities (i.e., creativity, reasoning skills, intelligence, verbal ability, cognitive complexity), self-confidence, socialized power motives, propensity for risk, and social and nurturance skills.

While these approaches are presented as different conceptual frameworks, they overlap in several critical ways. For example, conceptual complexity theories emphasize the role of senior leaders in organizational planning from a 5- to 20-year time frame. Behavioral complexity theories specify two of the key roles of executive leaders to be "mentor" and "visionary." Both roles are congruent with several inspirational leadership models. Leader visions are expected to reflect a congruence between the organization and its environment at some future point in time, a premise that is reflected in several strategic decisionmaking models. These observations suggested that a common core that can be discerned across all four of the conceptual approaches described in this report is an emphasis on the responsibility of senior leaders to establish the long-term purpose and direction of the organization.

Another theme that is a constant across all four conceptual approaches is the boundary-spanning requirement of senior leadership. Conceptual complexity theories argue that the complex problem solving skills required for effective executive leadership derive from the informational complexity of the

environment they must confront as representatives of their organization. Behavioral complexity theories cite that one of the roles top leaders must balance along with others is that of liaison and ambassador for the organization in its environment.

Visionary leadership theories note that effective executive visions are idealized representations of how organizations should fit within a dynamic environment at a future point in time.

Finally, strategic management theories regard strategic thinking as involving the leader's efforts to develop and maintain a congruence between organizational and environmental conditions.

While these conceptual frameworks emphasize somewhat different factors regarding the nature of executive leadership and key executive leadership competencies, they share the themes offered by Barnard (1938) and Katz and Kahn (1966, 1978)—that of organizational direction setting and environmental boundary spanning. In this report, each conceptual approach is the subject of two chapters. In one chapter, the conceptual model is described in more detail, and then evaluated according to the applicable questions listed in Table 1-1. In another chapter, the empirical research completed under the rubric of each conceptual approach is reviewed and then critically analyzed, again according to criteria derived from the questions in Table 1-1. In the final chapter of this report, these reviews and analyses are integrated into a general framework that suggests what is known about top organizational leadership. Then, a number of recommendations and suggestions are offered regarding necessary future directions in executive leadership research, particularly in military settings.

Chapter 2

Conceptual Complexity Theories of Executive Leadership: Conceptual Review and Evaluation

INTRODUCTION: TASK AND COGNITIVE COMPLEXITY

The premise of the theories and models summarized in this chapter is that the working or operating environment of senior organizational leaders is of such complexity that leader success becomes predicated on the possession and application of higher order cognitive abilities and skills. What produces operational complexity for executives? One factor, following from the boundary-spanning and organizational-management functions of such leaders that were described in Chapter 1, is the need to balance multiple constituencies and stakeholders of the organization. For example, when establishing organizational strategies and making decisions, top company executives must respond to the requirements of the different departments that are subordinate to them. Because of their different functional perspectives, these departments will often present conflicting and mutually exclusive demands. This complexity is exacerbated for top corporate executives who must respond to multiple *organizations* within the corporate umbrella. Further, this constellation of internal demands needs to be resolved within an external environment that also contains multiple stakeholders and organizational constituencies. Like those in an organization's internal environment, each of these external stakeholders will also present demands and requirements that must be addressed and balanced by executives.

The boundary-spanning and organizational-management elements of organizational complexity produce a requirement that executives possess the knowledge and skills to be able to respond in appropriate ways to each of these leadership

stakeholders. That is, leaders need to display greater degrees of behavioral complexity as they ascend organizational levels. This form of complexity is covered more thoroughly in Chapters 4 and 5.

However, the multiple constituencies confronting top executives present another element of complexity that is germane to the executive performance requirements described in this chapter. Operational complexity for executives results from information processing demands that increase in magnitude at higher organizational levels. Executive information processing is considered complex both in terms of information content that must be assimilated and the cognitive structures required for a fully integrated representation of diverse organization-related stimuli. Analyses by Campbell (1988) and Schroder, Driver, and Streufert (1967) described three information dimensions that define task complexity: (1) information load, (2) information diversity, and (3) rate of information change. According to Campbell (1988, p. 43), *information load* refers to the number of information sources and dimensions requiring attention.

Information diversity is defined by the number of alternatives associated with each information source. *Rate of change* reflects the dynamic and uncertain character of information sources.

Campbell (1988) argued that multiple possibilities in terms of solution paths increase overall information load. The different internal and external stakeholders to whom the executive is beholden, as well as the range of dynamic environmental forces and influences (e.g., economic, political, legal, technological; Hall, 1991; Katz & Kahn, 1978) acting on the organization, virtually guarantee that top organizational executives will have to generate, attend to, and choose from multiple solution paths. Further, the diversity within and between constituencies as well as the fluid character of most organizational environments create multiple outcome possibilities, conflicting or interconnected solution paths, and ambiguous associations between defined solution paths and outcomes (i.e., high information diversity and rate of change). Each of these characteristics contributes to high information-processing demands and hence greater task complexity (Campbell, 1988).

Mumford, Zaccaro et al., (1993) specified that both the novelty and lack of definition in most of the problems executives confront also contribute to operational complexity. Anderson (1990; see also Newell & Simon, 1972) defined a problem space as including the initial situation and parameters confronting the problem solver (*initial state*), the multiple paths to potential solutions (*intermediate states*), and the desired solution or goal (*goal state*). A problem is considered to be *well-defined* when its space contains clearly specified initial, intermediate, and goal states. In such cases, problem solvers proceed through a series of steps until a solution is generated; success is based on the solver's knowledge of this progression and of the specific steps to the appropriate solution. *Ill-defined problems*, however, are those for which the starting parameters, the permissible solution paths, and the solution goals are ambiguous and unspecified (Holyoak, 1984). Accordingly, problem solvers need to construct the problem, search for acceptable solution paths, and specify a goal state that may not generate universal consensus regarding its appropriateness. These requisite tasks increase the complexity of the problem for the solver. Mumford, Zaccaro et al. (1993) suggested that the proportion of ill-defined problems that characterizes the work of organizational leaders increases as one ascends the organizational hierarchy; thus, in addition to high information-processing demands, the complexity of executive work follows from the relatively high proportion of ill-defined problems they need to confront.

Jaques (1976, 1986, 1990a) operationalized several elements of work complexity as the longest time span associated with the completion of any required work. Time spans range from immediate at the lowest levels of organizational management to 20 to 50 years for top corporate executives. Operational time spans that extend far in the future obviously contain significant information load, diversity, and ambiguity. Further, environmental dynamism and uncertainty will render such long-term problems as ill-defined. Thus, the complexity of executive work can be grounded most directly in the extended time spans required for such work.

A basic premise in cognitive science is that task or problem complexity requires corresponding cognitive complexity in the problem solver (Jaques, 1990b). Davidson, Deuser, & Sternberg (1994) argued, for example, that as problems become more ill defined and unstructured, or require greater insight and creativity, solvers need to apply higher order or metacognitive problem solving skills to solve them effectively. Holyoak (1984) suggested that novel problems require more analogical reasoning strategies, whereby mental models from related problem domains are applied to a target domain to generate a workable solution. Schroder et al. (1967) provided the most direct evidence of this requisite correspondence, demonstrating that task performance declines when individuals possessed insufficient cognitive complexity to complete a task having high information-processing requirements (see also Streufert & Streufert, 1978).

This premise of correspondence between the complexity of executives' operating environments and requisite cognitive capacities is the basis for two theoretical approaches to executive leadership described in this chapter. Each conceptual framework emphasizes cognitive abilities beyond intelligence; hence they are termed *conceptual complexity* theories. The more prominent of these is Stratified Systems Theory (Jacobs & Jaques, 1987, 1990, 1991; Jacobs & Lewis, 1992; Jaques, 1976, 1986, 1989; Jaques & Clement, 1991), which will be described first. This is followed by Streufert's Interactive Complexity Theory (Streufert & Nogami, 1989; Streufert & Swezey, 1986). Another conceptual framework, Hunt's (1991) Extended Multiple-Organizational-Level Leadership Model, is highly compatible with both of these theories. However, because this model is a synthesis that includes several other models to be described later in this report, it will not be reviewed here; I will return to this model, though, in Chapter 10. The presentation of the two conceptual complexity theories of executive leadership in this chapter is organized by the four major themes specified in Chapter 1: the nature of organizational leadership, requisite leader characteristics, measurement tools, and issues related to leader training and development. The descriptions of both theories around each theme is then followed by an evaluation of

how they respond to the questions and criteria raised in Chapter 1 (see Table 1-1).

THE NATURE OF ORGANIZATIONAL LEADERSHIP

Stratified Systems Theory

Definition of leadership. An essential premise of Stratified Systems Theory is that leadership performance requirements can be differentiated by organizational levels. However, these requirements are grounded in a definition of leadership that applies within and across all organizational levels. This definition, offered by Jacobs and Jaques (1990, p. 282), states that “Leadership is a process of giving purpose [meaningful direction] to collective effort, and causing willing effort to be expended to achieve purpose.”

This definition emphasizes, first of all, that the critical role of leadership is providing a purpose for collective, organized action. At lower organization levels this role may translate to direction setting for individuals or small units; at the top of the organization, it means that leadership involves the establishment of a direction for the organization (or, in the case of corporations, multiple organizations) as a whole. Note that this is congruent with Barnard’s (1938) pioneering work described in Chapter 1, in which he defined executive leadership in part as responsible for providing organizational direction.

Jacobs and Jaques’s definition also specifies the mobilization and coordination of collective effort as an essential component of the leadership process. At the lower levels of organizations, this involves such activities as task specification, performance monitoring, the translation of goals and plans established at higher levels into day-to-day production activities, and motivating subordinates to accomplish these goals and plans. At the top of the organization, this involves the generation of resources from the larger environment, the allocation of resources within and across organizational subsystems, and the empowerment of the organization as a whole (Bass, 1985). This focus is congruent with Barnard’s (1938) theme of executive

leadership involving organization-wide coordination and maintenance.

Jacobs and Jaques (1987, 1990) specified several important elements regarding their definition of leadership that shape the remainder of their conceptual framework. First, the process of leadership involves *decision discretion*. That is, leadership occurs when position incumbents are able to make choices about decision alternates and problem solutions. Jacobs and Jaques (1990, p. 282) argued, in fact, that without the possibility of choice and discretion, there is no opportunity for leadership. Mumford and his colleagues (Fleishman, Mumford, Zaccaro, Levin, Korotkin, & Hein, 1991; Mumford, 1986; Mumford et al., 1993) make essentially the same argument. The inclusion of this element in the definition of leadership suggests that leadership processes will include problem specification, the delineation of choices, and the evaluation and selection of the most appropriate ones. These decision functions essentially mean that leadership will in large part reflect a *cognitive* or problem solving process (Jacobs & Jaques, 1987; Mumford et al., 1993). Further, as previously described, problem types and decision choices become more ambiguous, less structured, more novel, and more differentiated at higher organizational levels. Thus, the cognitive process of leadership becomes correspondingly more complex.

A second element of leadership is that the effectiveness of a leader's direction setting efforts is defined by the consequential adaptiveness of his or her organization. That is, the choices made through the process of leadership will be validated by how well the organizations subsequently adapt to environmental contingencies. Jacobs and Jaques (1987, p. 14) describe this critical leadership element as follows:

Viewed as open systems, organizations are entities, acting within an environment that is generally competitive and sometimes hostile. They are dependent on the external environment for resources (information, matter, and energy) and must maintain no less than parity between resources acquisition and resources utilization or eventually die. . . . The most fundamental organizational issue is continued survival, and *the key leadership task at*

any given level is to contribute to survival by whatever means is appropriate for the level or system or subsystem at which leadership is being exerted [italics added].

At lower organizational levels, this requirement often translates to ensuring that unit goals, tasks, and resources are congruent with strategies and purposes established at upper levels. Indeed, Ancona (1987) and Ancona and Caldwell (1992) defined a number of boundary-spanning functions in organizational groups that facilitate such congruence. However, at the top of the organization, adaptation often requires that executives act and interact increasingly within the external environment to stabilize existing resources and acquire new ones. The complexity of the organization-environment interaction is such that while some of the forces and influences generated by the organization or within the environment will have short-term or immediate consequences, most will reverberate far down stream. Thus, organizational adaptation at the executive level requires more proactivity and planning within longer time frames. This requirement adds to the cognitive demands confronting senior leaders.

One of the most critical elements of organizational leadership specified by Stratified Systems Theory is the provision by the leader of a *frame of reference* for collective action. This frame of reference, also called a causal map or conceptual model by Jacobs and Jaques (1987, 1990), is a cognitive representation of the elements and events that comprise the operational environment within which leadership occurs. That is, such models contain the pattern of causal (antecedental and consequential), categorical, or incidental relationships among these events and elements. A causal frame of reference provides the basis for a leader's understanding and interpretation of information and events encountered in the organization's operational environment. It also provides meaning for an organizational direction and purpose that is specified through the leadership process. That is, the logic and rationale for an articulated direction is presumably grounded in the causal relationships interpreted by top executives as existing among the critical events in organizational space.

Jacobs and Jaques (1987; Jacobs & Lewis, 1992), relying on the notion of requisite variety (Ashby, 1952), argued that the complexity of this causal map must correspond to the complexity of the operating environment being patterned. Therefore, the frames of reference or causal maps developed by senior leaders must be more complex than those of leaders at lower organizational levels. This required difference results because (a) executive leaders' maps must accommodate many more causal elements; (b) these elements have more complex interconnections and associations; (c) multiple causal chains may be occurring simultaneously, requiring both differentiation and integration; (d) antecedent events are occurring over longer time frames at higher organizational levels and thus greatly increasing the difficulty of perceiving and integrating them into a comprehensive causal map; and (e) executives who are operating within the external environment need also to factor into their frames of reference the strategies and purposes of executives of other co-acting and competing organizations (Jacobs & Jaques, 1987). The requirement of increasingly complex models and causal maps at upper organizational levels provides the need, then, for higher order cognitive skills capabilities at these levels.

Organizational stratification. This perspective of leadership provides a basis for a hierarchical classification or stratification of organizational leadership requirements, where performance demands are changing qualitatively at particular points in system structure. Stratified Systems Theory specifies an organizational stratification model that is illustrated in Figure 2-1 (from Lucas & Markessini, 1993, p. 6; see also Jacobs & Jaques, 1987; Jacobs & Lewis, 1992). This model contains three general layers, reflecting three functional domains. These layers correspond to Katz and Kahn's (1978, p. 539) three leadership processes of administration ("use of existing structure"), interpolation ("supplementing and piecing out of structure"), and origination ("change, creation, and elimination of structure"). The layers incorporate seven strata. Each successive layer and stratum presents an increasingly complex operating environment with a longer time span for the conduct of leadership processes. Time span refers to the *maximum* time horizon for tasks that require leadership at any particular organizational level. Figure 2-1

Task Requirements and Characteristics					
Stratum	Domain	Type of Unit Supervised with Civil Service and Industrial Correlation		Systems, Resource, and Policy Task Requirements	
		TOE Grade	(Civil Service)	Industry & Commerce)	Representative No. of Subordinates
VII INDIRECT Strategic/ Systems	General	Unified or specified command or field armament	Cabinet Secretary	Corporation	Create and integrate complex systems; organize acquisition of major resources; create policy.
	Lieutenant General	Corps	Deputy Secretary	Group	Oversee directly operation of subordinate divisions; allocate resources; apply policy.
V Organizational	Major General	Division or TA Organization	Under Secretary	Full DMS	Direct operation of complex systems; allocate assigned resources; implement policy
	Brigadier General Colonel	Separate Brigade Divisional Brigade	Assistant Secretary	Medium-Sized Business	Direct operation of systems; tailor or task organize resource allocations to interdependent subordinate programs and subsystems; implement policy.
IV DIRECT	Lieutenant Colonel/ Sergeant Major	Battalion	Principal Staff	One-Man Business or Unit	Develop and execute plans and task organize sub systems; prioritize resources; translate and implement policy and assigned missions.
	Major	Battalion ORT Level			
II Command	CPT/ First Sergeant	Company Platoon	Assistant Principal	Section	Supervise direct performance of sub-systems; anticipate/solve real-time problems; shift resources; translate and implement policy.
	Lieutenant/ NCO	NCOs and ORs	Clerical and Office Supervisor	Supervisor and Shop- and Office Floor	Direct performance of work; use practical judgment to solve ongoing problems.
I					

Note: From *Senior leadership in a changing world order: Requisite skills for U.S. Army one- and two-star assignments* (p. 6), by K.W. Lucas & J. Markessini, 1993 (ARI Tech. Rep. 976). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. Reprinted with permission from U.S. Army Research Institute for the Behavioral and Social Sciences.

Figure 2-1. Levels of organizational stratification proposed by stratified systems theory.

displays time spans, general task requirements, and corresponding Army grades for each of the seven strata.

The lowest functional domain is the *production* domain, composed of three strata. Here, leadership is characterized as involving direct and small group interaction, where tasks are fairly concrete and are expected to be accomplished within relatively small time frames. Stratum I work includes the bulk of actual production operations with tasks that have an immediate time frame. This work is almost completely prescribed by rules, plans, and instructions that come from managers operating at Strata II and III. In addition to providing such direction, Stratum II managers are required to anticipate problems and begin to meet personnel development needs. Indeed, a critical issue at this level is balancing performance and development requirements (Jacobs & Jaques, 1987). Stratum II managers operate within a 3- to 12-month time frame. At Stratum III, managers operate within a 1- to 2-year time frame. They are typically tasked with developing plans to implement strategy and policy directives established at upper levels. Accordingly, they need to balance immediate production demands against future resource requirements.

The next functional domain is the *organizational* domain, composed of two strata. Organizational domain leadership requires the provision of a comprehensive frame of reference that begins to pattern elements of the external environment for a organization as a whole. Also, organization leaders are coordinating and integrating the activities of multiple subsystems. Stratum IV leadership involves indirect management of subordinates in the production subsystem. Managers at this level establish production goals, strategies, and time frames to be implemented by others. Further, at this stratum, leaders are coordinating the demands and activities of more than one production unit. The time span of Stratum IV work is typically 4-7 years. Stratum V is the first level where leadership responsibility can extend to either a single company with no buffer from the external environment, or to a component of a corporation or business conglomerate. Here, direct boundary spanning with the external environment becomes a

larger proportion of requisite leadership work. Stratum V managers make strategic and policy decisions that can result in substantial alterations in the structure and climate of the company. Further, they provide a frame of reference for the company as whole within its external operating environment. Accordingly, they operate within a 5- to 10-year time span.

Jacobs and Jaques (1987) defined senior leader or executive work as occurring in the *systems* functional domain. They specified such work as involving the development and nurturance of new business units (i.e., structural change) and the formation of international and national networks. Such networks facilitate the extensive environmental scanning activities required of executives. Thus, they note that for such leaders,

The primary business at the systems level lies in two areas. One is interaction with [the] external environment, both impacting on it and getting and interpreting information from it to produce a more rational (stable) environment within which subordinate companies can operate. The second is creating critical resources masses, that is, fiscal, raw materials, personnel, technological, and favorable public and/or political opinion, for future ventures (p. 25).

Stratum VI work involves the integration of various business units and formulation of strategies and policies to be applied either generically or differentiately to these units. Leaders at this level provide a frame of reference, developed substantially with Stratum VII leaders, to subordinate companies that charts the direction of the corporation as a whole. Accordingly, their operational time frame is 10-20 years. Stratum VII managers are typically corporation heads, CEOs, and, in the case of the Army, 4-star generals. Their work requirements involve extensive interaction outside of the organization to create new subsidiary business units and acquire the resources to sustain these and existing units. Furthermore, responsibility for the creation and change of corporate climate as well as the establishment of organizational values resides at this level. The time span for this work is 20 years and beyond.

In defining the work of executive-level leadership, Stratified Systems Theory appears to emphasize the leader's external systemic perspective in relation to his or her internal systemic perspective (Gardner & Schermerhorn, 1992). Indeed, Jacobs and Jaques (1987, p. 25) noted that the consistencies at the executive leadership level "stem from the location of the corporate headquarters, essentially outside their subordinate systems and within the external environment—political, economic, social, technological, and intellectual (ideas)." This suggests that the sphere and modes of influence practiced by senior leaders are directed more toward the external environment of the organization than toward its internal operations. Other perspectives of senior leadership described later in this report suggest a more even balance between external and internal functions. Indeed, behavioral complexity theories suggest that effective leadership *requires* equal time being given to these somewhat competing orientations (see Chapter 4).

While Stratified Systems Theory emphasizes the executive's orientation to the external environment, it does not entirely neglect the proposed operational responsibilities of executive leaders. Jacob and Jaques (1987) noted that the primary responsibility of leaders in Stratum VII is the creation of new organizational units. They accomplish this responsibility by developing a consensus among Stratum VI leaders to gain support for their initiatives and commit their immediate subordinates to the operational implementation of new policies and plans. Further, top leaders are tasked with creating a corporate culture that supports the implementation of their vision. Thus, senior leaders not only appear to be engaged in organizational management, they utilize both structural and climatic means of organizational change to implement their formulated direction.

Nonetheless, the primary orientation of the executive remains decidedly outward. For example, Jacobs and Jaques (1987) noted that while senior leaders engage in consensus building among organizational members to implement decisions, the more operational details are left to their subordinates' discretion. They focus their energy, instead, on the creation and

acquisition of critical resources needed for new organizational units. Further, the executive's efforts to change the psychological climate of the organization are primarily initiated to ensure "that the corporate culture and value system are 'like' the culture and value system of the encompassing society" (p. 25). The purpose of developing this fit is to increase the likelihood that new business units will be accepted within the organization's larger environment.

Stratified Systems Theory provides a clear delineation of leadership work and role requirements that differ qualitatively across organizational levels. In essence, as leaders move to higher levels of the organization, they are required to plan and think within a longer time horizon and incorporate more influences outside of the organization within their perspective making. Further, requisite social influence patterns change from more unidirectionally downward to more consensual and persuasive. Both of these requirements suggest the need for extensive network building to provide additional information conduits, as well as facilitate the more informal influence process of consensus building.

Interactive Complexity Theory

While Interactive Complexity Theory was introduced about 30 years ago (e.g., Driver & Streufert, 1966; Schroder, Driver, & Streufert, 1967; Streufert & Driver, 1967), it has only been applied to organizational leadership over the past 10 years (e.g., Streufert & Nogami, 1989; Streufert & Swezey, 1986). A complete treatment of this theory is beyond the intent of this report, and interested readers are referred to Streufert and Streufert (1978) and Streufert and Swezey (1986) for extended treatments. In this report, only the applications of Interactive Complexity Theory to organizational leadership will be described.

Interactive Complexity Theory is concerned with the structure, rather than the content, of information processing by organizational managers. This theory proposes that in essence "optimal functioning of individuals is viewed as an interactive

effect of two variables, one concerned with individual differences, the other with environmental conditions" (Streufert & Swezey, 1986, p. 25). Individual differences refer to a person's ability and inclination to differentiate and integrate multiple information sources. Organizational structures and their operating environments themselves can also be fairly unidimensional or highly differentiated. Streufert and Swezey (1986) argued that success in organizations occurs when the cognitive complexity of an individual matches the level of organizational or environmental complexity. This argument is consistent with the requisite variety premise of Stratified Systems Theory.

Unlike Stratified Systems Theory, however, Interactive Complexity Theory, as applied to organizational systems, does not offer a *systematic* classification of differences in environmental complexity across organizational levels. Nonetheless, Streufert and Swezey offer several broad differences in complexity between lower and upper organizational levels. First, an essential component of organizational complexity is information load. This refers to the amount of information flowing into the organization as well as information exchanges among segments of the organization. At upper organizational levels, there are typically more sources of information flow; therefore, more information must be differentiated and integrated by managers than at lower organizational levels. A related point is that upper level managers are responsible for differentiating and integrating the needs, demands, and climates of more organizational segments than lower level managers. Lower level managers can generally operate successfully from the perspective of their subordinate unit (i.e., using a unidimensional cognitive space); upper level managers need to operate within multiple perspectives from diverse organizational components.

A third element of differential complexity across organizational levels is that individual organizational units will often have only one, maybe two, goals. For example, managers of a production unit may be guided by the goal of maximizing product output and perhaps of personnel development.

Managers of sales department may be guided by the single goal of maximizing monthly sales orders. At the top of the organization, multiple goals are operative, including profit, investments, organizational change, and the best positioning of the organization relative to its environment. Further, some goals are short-term while others have a longer time horizon. Both the number of goal dimensions and the corresponding time frame for each one needs to be integrated by top managers for the organization to be successful.

A final element of organizational complexity is the degree of fluidity and turbulence characterizing the external environment. A central premise of complexity theory is that the optimal level of individual complexity depends upon the degree of environmental complexity present for the individual. Theories of organizational environments postulate that such environments will have multiple components (e.g., political, technological, legal, economic, etc.) and that each component may vary from (a) stable to turbulent; (b) uniform to diverse; and (c) organized to random (Emery & Trist, 1965; Hall, 1991; Katz & Kahn, 1978). Thus, organizational environments can range from fairly simple in all of its components, to complex in some of its components but not others, to complex in all of its components. If the environment is simple or only moderately complex, then high levels of individual complexity are not only unnecessary, but likely to be counterproductive (Streufert & Swezey, 1986). However, given the rapid rate of change in today's world, the operating environment for most corporate organizations is likely to be decidedly complex. Because executives have the primary responsibility for boundary spanning with the external environment, they need to be able to respond to the resultant complexity.

While Interactive Complexity Theory does not offer the formal stratification model of organizational work that Stratified Systems Theory provides, it does appear to reflect in broader strokes the qualitative changes in organizational leadership requirements that are specified by Stratified Systems Theory. A subtle difference, perhaps, is that Streufert and Swezey (1986) left open the possibility that under certain conditions of

environmental stability and relatively uniformity, high levels of cognitive complexity may be counterproductive. They note, for example that

a cognitively complex executive is likely to be a superior planner who is able to actively consider a large number of contingencies and their implications. Is such a person consequently a better executive? The answer is not necessarily "yes." Under some conditions, "overplanning" can be just as detrimental as underplanning. In some cases, a simple, straightforward decision might be preferable to a well-considered strategic decision (p. 71).

Stratified Systems Theory does not appear to consider the moderating role of environmental dimensions on executive cognitive requirements; instead, it assumes that at the systems level (i.e., Strata VI and VII), environments will be turbulent, diverse, and ambiguous; Interactive Complexity Theory accepts such conditions as the norm, but argues the need to consider variance in the nature of organizational environments.

Streufert and Swezey (1986) argued more forcefully against the time span notions offered by Stratified Systems Theory. They did not disagree that longer time spans are associated with the need for greater cognitive complexity. They did suggest, though, that planning over a long time span is productive primarily in stable environments when rapid and contingency-based or sequential decisionmaking is not a requirement. However, they argued that long-term planning under conditions of environmental fluidity and uncertainty would represent counterproductive overplanning. This argument led them to conclude that "time span is not a primary component of executive planning styles" (p. 78). Indeed, they suggest that even 5-year strategic plans are not productive because they tend to be inflexible and based on rapidly outmoded premises.

These differences between Interactive Complexity Theory and Stratified Systems Theory may not be as large as Streufert and Swezey (1986) suggest. Jacobs and Jaques (1987) suggested that time span represents the maximum horizon for possible

executive work, not the horizon for the *typical* executive task; thus, much executive work, even in Stratum VII, may be completed from relatively short time span perspectives.

Stratified Systems Theory does not explicitly propose that an executive frame of reference (or cognitive map) must be flexible. However, the utility or effectiveness of these maps is grounded in the degree to which they create adaptive responses by the organization. This criterion of adaptability would suggest a degree of flexibility in these conceptualizations. Nonetheless, the uniformly strong emphasis on complex planning and reflection by Stratified Systems Theory at the executive organizational level is a characteristic that is disputed by several executive leadership models in addition to Interactive Complexity Theory (e.g., Mintzberg, 1973, 1975). Further, the strong emphasis by Stratified Systems Theory on long-term planning raises a question of applicability to military executives, who typically have relatively short tours of duty (e.g., 2 years) in most strategy-making or policy-setting positions. Perhaps planning responsibilities, and particularly the organizational structure changes that are defined by Stratified Systems Theory as the province of senior executives, differ qualitatively for military versus nonmilitary executives, for whom position tenure may be considerably longer.

Summary and Conceptual Evaluation

*Key Questions for Evaluation of Conceptual Complexity
Theories on the Nature of Executive Leadership:*

- How do executive leadership performance requirements differ from such requirements at lower organizational levels?
 - Where do these role requirements shift in quality across organizational levels?
 - How is leader effectiveness and influence defined and operationalized at different organizational levels?
 - What is the relationship between the accomplishment of executive performance requirements and organizational effectiveness?
-

In their exhortation for a systematic theory of executive leadership, Day and Lord (1988) argued that such a theory should in part (a) describe the mechanisms through which executives influence organizational performance; (b) clearly specify the qualitative differences between upper level and lower level leadership; and (c) be grounded in organizational theory. The descriptions of senior leadership work offered by the two theories in this section, particularly that of Stratified Systems Theory, reflect Day and Lord's (1988) suggestions for an appropriate and systematic executive leadership theory. Each theory specifies clear and qualitative differences between upper, middle, and lower level leader performance requirements. Stratified Systems Theory provides a fairly precise index of these differences in terms of work time spans and specific critical tasks. These two operational definitions of changing work complexity are also used to delineate the particular shifts in quality across work levels. Interactive Complexity Theory defines these qualitative differences in terms of changes in information processing requirements. In each model, these postulated work performance differences across organizational

levels provide the framework for specifying separate requisite leader characteristics for each level of leadership.

Stratified Systems Theory is more specific in terms of how leader effectiveness is defined and how executive work performance influences organizational success. Such success is defined by how adaptive the organization is within its larger environment. Accordingly, leader effectiveness is defined as the fit of the supervised unit within its larger environment. The nicety of this criterion is that it applies across all levels of the organization—the leader's role is to provide direction for a unit (from a small group to a corporation) that is adaptive within a larger set of requirements. However, these requirements become more diffuse and uncertain at upper levels as leaders begin to position the organization as a whole within the external environment.

This direction-making process is also the means by which executives influence organizational performance. Stratified Systems Theory argues that organizations succeed when their structures and subsystems are made congruent with dynamic environmental conditions. The mechanism that guides the selection of actions regarding organizational adjustment and change is the frame of reference or cognitive map that is formed by executive leaders and represents the actual and potential causal forces operating on the organization. The quality of organizational adaptation, and therefore performance, is grounded in the quality and accuracy of the executive's mental model that is formed and communicated to the rest of the organization. Along these lines, Jacobs and Jaques (1991, p. 434) note:

Executive leaders "add value" to their organizations in large part by giving a sense of understanding and purpose to the overall activities of the organization. In excellent organizations, there almost always is a feeling that the "boss" knows what he is doing, that he has shared this information downward, that it makes sense, and that it is going to work.

Stratified Systems Theory is intrinsically imbedded in the open systems theory of organizations (Katz & Kahn, 1978). As such, it provides an illustration of the integration of leadership and organization theory called for by Day and Lord (1988). Interactive Complexity Theory extends a model of individual and environmental complexity to organizational action; thus, its roots lie in a different perspective. Nonetheless, the definition of organizational complexity offered by Streufert and Swezey (1986) and their description of the complexity confronting executives is congruent with several models of organizational decisionmaking. Indeed, based on a taxonomic classification of organizational systems (Swezey, Streufert, & Mietus, 1983), Streufert and Swezey demonstrated the extensive utilization of complexity theory terminology in organizational and systems theories.

In sum, then, at least with respect to their descriptions of the nature of executive work and its impact, the two conceptual complexity theories appear to satisfy several criteria for a well-formed conceptual framework of executive leadership. However, as noted by Day and Lord (1988), a critical component of such a framework is also the delineation of requisite leader characteristics. The next section describes the contributions of these theories to this question.

REQUISITE LEADER CHARACTERISTICS

Stratified Systems Theory

Jacobs and Jaques (1987) suggested three sets of leadership skills that are generic across organizational levels, although each set is more or less influential at different levels. Based on the work of Katz (1955), Mann (1965), and Katz and Kahn (1966, 1978), they defined these sets as including technical, interpersonal, and conceptual skills. Conceptual skills are proportionately more important as a determinant of leader effectiveness at upper organizational levels, while technical skills are more important at lower levels of organizational leadership. A conceptual framework of leader skills developed

by Clement and Ayers (1976) was also used by Jacobs and Jaques to elaborate these three sets and describe how leader skills change in focus across levels. Clement and Ayers identified nine dimensions of skills that were technical, management science, communication, human relations, counseling, supervision, decisionmaking, planning, and ethics. Table 2-1 presents Jacobs and Jaques's (1987, p. 31) integration of Clement and Ayres's formulation with the framework of Stratified Systems Theory.

At production levels of leadership (i.e., Strata II and III), primary leadership skills include an understanding of the technical requirements of work and the knowledge to meet these requirements. They also include human relations and communication skills that facilitate the motivation and utilization of personnel to complete production tasks within the requisite time frames. Because the work at these levels is concrete and almost completely prescribed by higher level strategies and assignments as well as by existing rules and regulations, necessary cognitive skills at this level are limited to short-term planning, goal setting, task structuring, and resolving immediate and direct production obstacles.

Leadership skills for organizational domain levels (i.e., Strata IV and V) include interpersonal skills operative at the production level as well as skills oriented toward consensus building and the establishment of communication and information networks, and the development of subordinate capabilities (Jacobs & Jaques, 1987). Technical skills become relatively less important, although organizational-level managers need to understand organizational systems and how various subsystems are integrated. Conceptual skills include long-term planning, the ability to balance and integrate multiple business strategies, and skill in environmental analysis and interpretation.

Systems-level leadership (i.e., Strata VI and VIII) requires interpersonal skills that facilitate communication with a diverse set of external constituencies, representation of the organization to external agencies, and development of a corporate climate that is reflective of executive values and policies. Also, skills concerning collective strategic thinking and consensus building among other strategic or systems-level leaders that represent

Table 2-1. Leader Skill Requirements by Level

Production Level	Organizational Level	Systems Level
Conceptual	Conceptual	Conceptual
<i>Planning</i> —Establishes intermediate general objectives and organizes short-term programs; schedules work, maintenance, and short-term production goals.	<i>Planning</i> —Develops plans, makes forecasts; analyzes organizational progress within long time frames; defines and interprets policy; allocates resources.	<i>Planning</i> —Develops a flexible change posture; interprets ambiguity; originates structure; synthesizes economic principles; synthesizes social and cultural influences.
<i>Decisionmaking</i> — Makes decisions on operational procedures; carries out decisions dealing with structured content; follows standardized procedures and decisionmaking processes with regard to specific work-unit functioning; assigns workers and groups of workers to specific jobs.	<i>Decisionmaking</i> — Establishes an effective decisionmaking climate; decides whether to seek to obtain capital resources.	<i>Decisionmaking</i> — Synthesizes abstract content; plans decisions within long-term perspective; chooses whether or not to procure resources.
<i>Ethics</i> —Focuses on product improvement and service quality; deals with client complaints.	<i>Ethics</i> —Is responsible for reputation of products/services; is responsive to social and community needs; is concerned with public relations.	<i>Ethics</i> —Articulates appropriate organizational value system; focuses on company integrity and reputation; formulates plans for maintaining the good will of the organization; develops ethical framework consistent with corporate goals and policies; synthesizes and responds to environmental issues.

Note: From "Leadership in complex systems," by T. O. Jacobs & E. Jaques, in *Human productivity enhancement*, J. Zeidner, Ed. (Praeger Publishers, an imprint of Greenwood Publishing Group, Westport, CT, 1986), p. 31. Copyright 1987 by Praeger Publishers. Reprinted with permission.

(table continues)

Table 2-1. Leader Skill Requirements by Level

Production Level	Organizational Level	Systems Level
Interpersonal	Interpersonal	Interpersonal
<i>Communication</i> — Employs organizational feedback techniques; provides interpersonal and performance feedback; provides daily production information.	<i>Communication</i> — Establishes information networks; facilitates organizational communication.	<i>Communication</i> — Communicates extraorganizationally with government officials, pressure groups, etc.; represents the organization's viewpoint to the public; relies on organizational channels for internal communication.
<i>Human Relations</i> — Works to create a supportive work atmosphere; “maps” interpersonal relations within small work group and between work groups; and maintains equity within the workforce.	<i>Human Relations</i> — Creates a supportive environment and an effective working climate within the organization.	<i>Human Relations</i> — Develops the organization's relations with those outside the organization.
<i>Counseling</i> —Establishes yardsticks to evaluate individual and group performance; provides and receives unit performance feedback.	<i>Counseling</i> —Evaluates performance appraisal systems; identifies colleagues who have personal problems that might adversely affect organizational well-being.	<i>Counseling</i> —Establishes conducive climate.
<i>Supervision</i> —Focuses on efficiency of operations; performs “linking pin” tasks; establishes procedural and quality-control checks; reviews production results; organizes use of equipment and develops workforce cohesion; assigns individuals to tasks; orients and trains new people; assures safe operation of equipment.	<i>Supervision</i> —Reinforces the motivational climate; coordinates sub-unit objectives; establishes organizational structure.	<i>Supervision</i> —Focuses on executive development programs; develops an effective motivational climate; maintains total organizational perspective.

(table continues)

Table 2-1. Leader Skill Requirements by Level

Production Level	Organizational Level	Systems Level
Technical <i>Technical</i> — Comprehends advanced technology; selects procedures, techniques, and methods related to specific task or subject area. <i>Management Science</i> — Develops performance standards and performance appraisal methods; maintains inventories; differentiates results from one production period to another.	Technical <i>Technical</i> —Relies on technical experts for technology. <i>Management Science</i> — Sets 3- to 7-year objectives; develops management techniques; reviews budget proposals; develops performance appraisal systems.	Technical <i>Technical</i> —Relies on technical experts. <i>Management Science</i> — Formulates and approves executive development programs.

diverse internal and external groups are necessary at this level. Technical skills are proportionally least influential at this level. Instead, the most critical executive skill is a conceptual or cognitive capacity that allows senior leaders and executives to develop a frame of reference that appropriately maps the complexity of their operating environment. This skill is perhaps the most important senior leadership attribute offered by Stratified Systems Theory. Indeed, Lewis and Jacobs (1992, p. 136) argued that:

the fundamental individual difference variable that most often distinguishes successful strategic leaders from unsuccessful ones is the extent to which leaders' conceptual capacity meets or exceeds the conceptual demands inherent in their work. Those promoted to strategic leadership typically already possess the requisite interpersonal and technical skills needed to be successful. These skills and the motivation to lead will usually already have been amply demonstrated at lower managerial levels.

Thus, Lewis and Jacobs suggested that leaders' effectiveness at the top of the organization is likely to be a function of cognitive capacities, rather than interpersonal competencies, technical skills, or even motivational and personality differences. These latter variables, along with cognitive skills, predict differences between junior and senior leaders. However, the presumption is that executive leaders already possess these requisite correlates of success. Accordingly, successful versus unsuccessful executives are distinguished by differences in their conceptual capacities.

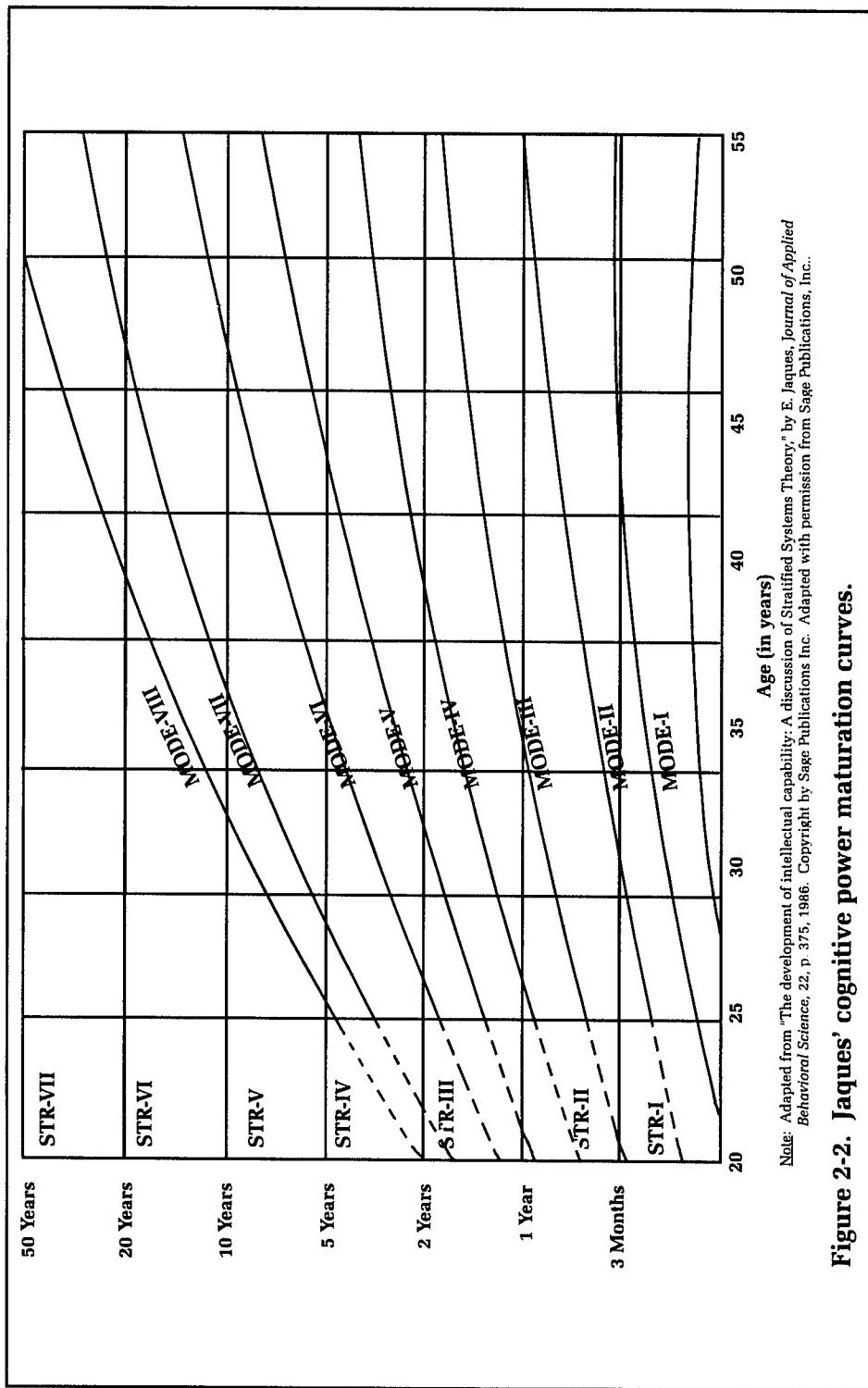
Conceptual capacity. Accordingly to Stratified Systems Theory, leader effectiveness is a function, in part, of how well a frame of reference provided by a leader patterns the causal and other mechanisms in the environment operating at any particular organizational level (Jacobs & Jaques, 1987). Causal factors increase in magnitude and in the intricacies of their interrelationships at upper organizational levels, and leaders' cognitive maps need to be correspondingly more complex. Conceptual capacity is defined as the *extent* of an individual's ability to think about and organize his or her experiences (Jacobs & Lewis, 1992, p. 124). It includes the element of time horizon, defined by Jaques and Clement (1991, p. 50) as "the longest period into the future within which a person is capable of organizing and carrying through given tasks or projects, handling as they arise on the way, and reaching the eventual goal."

Conceptual capacity is reflected in the complexity of the pattern or map an individual is capable of constructing to cognitively represent work experiences. As these experiences become increasingly complex, with more obscure cause and effect relationships, then individuals require more abstract thinking capacities to develop the requisite cognitive maps. At lower levels of complexity (e.g., those that characterize the operating environment in the production domain), categorical and causal relationships are fairly simple and concrete; information-processing requirements and the cognitive maps necessary to perform them effectively are relatively simple. Conceptual capacity demands are, therefore, limited at this level (Jacobs & Jaques, 1987).

For middle managers in the organizational domain, patterns of influence in the operating environment become more complex. At this level, there is a need to construct a map of the external environment as well as the place of the organization within the environment. This construction process requires more abstraction and analytical thinking skills because fewer concrete referents exist for concepts and ideas that come into play at this level (Jacobs & Lewis, 1992; Lewis & Jacobs, 1992). Further, more causal and categorical dimensions are operative in organizational domains, requiring the capacity to simultaneously consider and differentiate among these dimensions (Jacobs & Lewis, 1992).

Executives operating in the systems domains are required to understand more complex forms of organization (e.g., multicompany corporations) within environments with a greater number and more far-reaching influential constituents. They need to extrapolate these connections over a relatively long time span (Jaques, 1986). Further, they are tasked with developing new business units (i.e., Stratum V units) that must fit adaptively within the existing and dynamic system arrangements. To accomplish these tasks, they need to perceive and construct a conceptual pattern that (a) provides a basis for the selection of organizational actions within this very complex operating environment, and (b) provides the terms and language for the interpretation and explanation of these actions to managers acting (i.e., implementing actions) at lower organizational strata. Stratified Systems Theory proposes that cognitive capabilities related to abstract synthesis and integration are necessary to construct the frames of reference necessary in this domain (Jacobs & Jaques, 1987).

Jaques (1986, 1989) argued that conceptual capacity, or to use his term, “cognitive power,” can be charted at a particular point in an individual’s working life. This represents “the maximum time span at which a person can work at a given point in time” (Jaques, 1986, p. 374). Jaques then proposed a series of maturation or growth curves that represented predictable increases in an individual’s cognitive power over a lifespan. Figure 2-2 displays Jaques’s maturation curves.



Jaques proposed eight modes representing different levels of cognitive capacities. Each mode is reflected at some point along the organizational strata described earlier in this chapter. Note that the highest level of cognitive power that can be achieved early in one's working life (i.e., 20-25 years in age) allows a time horizon of no more than 2-4 years and reflects potential for Strata IV organizational work. The lowest levels of cognitive power reflect an immediate time horizon and work at the bottom of Strata I. However, the differences between cognitive modes in terms of time span potential become greater over time. For example, individuals capable of Modes I or II cognitive processes in their 20s begin at Stratum I and subsequent increases in their cognitive power match them with no higher than Stratum II work. However, individuals at the levels of Modes VI, VII, and VIII are capable of Stratum III work early in their careers, but raising to Strata VI and VII later in life.

Jaques's maturation curves, then, indicate that the higher one's cognitive power is early in life, the greater number of work strata that person is able to cross during his or her career. However, Jaques also noted that an individual is not able to cross into a different maturation band. For example, no amount of developmental interventions can help a manager who is capable of Mode IV cognition, at best, lead effectively at any organizational level higher than mid-Strata IV. If confirmed, these maturation bands have significant implications for the selection and development of senior leaders. In essence, they suggest a native or innate component of the set of requisite executive skills.

Proclivity. Jacobs and Jaques (1990) pointed out that the development of requisite frames of reference or cognitive maps is effortful work. Accordingly, the potential afforded by an individual's cognitive power needs to be accompanied by a temperamental characteristic that reflects his or her desire or inclination to engage in reflective thinking or cognitive model building. Jacobs and Jaques called this inclination *proclivity* and argued that it reflects the degree to which an individual is intrinsically rewarded by the cognitive activity of organizing complex experiences. They suggested that such proclivity may

be operationalized by the Myers-Briggs Type Indicator (MBTI), specifically the NT (intuitive-thinking) profile. Church and Alie (1986, p. 33) offer the following descriptions of intuitive and thinking individuals:

Intuitive Individuals: These individuals gather information primarily through associating new information and ideas with previously acquired information. . . . Intuitives dislike structure, details, and routine, and enjoy new problems and situations. . . . They also exhibit the conceptual ability to perceive environments as wholes and problems or events as parts of wholes. This is an attribute seen as desirable in strategic-level managers.

Thinking Individuals: Thinkers prefer to evaluate information and make decisions on the basis of logic. They tend to take a rational, systematic approach to problem solving and order people, situations, and information in a structured framework without considerations for the feelings of others. Thinking individuals tend to rely on cognitive processes for dealing with environments and people. . . .

Individuals who are inclined toward an NT cognitive style can be characterized as reflective thinkers interested in building mental models and conceptualizations of their experiences. Accordingly, Jacobs and Jaques suggested that the proportion of NTs relative to other styles may increase at higher organizational levels.

ARI extensions. ARI has initiated several other research projects into the nature of executive thinking and corresponding executive skills (Geiwitz, 1993; Laskey, Leddo, & Bresnick, 1990; Markessini, 1991; Mumford et al., 1993). Each of these programs is conceptually related to or congruent with Stratified Systems Theory. A common theme across these projects is that executive thinking requires high-level metacognition.

Perhaps the most common definition of metacognition is one's "knowledge and cognition about cognitive phenomena" (Flavell, 1979, p. 906). Garofalo and Lester (1985, p. 164)

distinguished between cognition and metacognition by noting that “cognition is involved in doing, whereas metacognition is involved in choosing and planning what to do and monitoring what is being done.” While several conceptualizations of metacognition exist in the literature, perhaps the one most applicable to the ARI research on executive leadership emphasizes the role of metacognitive processes and skills in complex problem solving (Brown, 1978; Davidson et al., 1994; Gagné, 1985; Geiwitz, 1993; Sternberg, 1985). Metacognitive processes are defined as executive functions that control the application and operation of cognitive abilities and skills.

Table 2-2 presents the metacognitive and complex thinking skills proposed by four ARI-sponsored research programs. While each program proposes a different set of metacognitive processes and skills, four general skill-related processes can be identified by these and other investigations of metacognition (Brown, 1978; Davidson et al., 1994; Gagné, 1985; Sternberg, 1985). The first process is *defining the nature of the problem to be solved*. This includes the awareness that a problem exists, the identification and definition of the problem, and the construction of its parameters. Here, problem solvers may use an array of cognitive abilities such as verbal and written comprehension, memory skills, and inductive and deductive reasoning (Fleishman, 1975; Fleishman & Quaintance, 1984) to interpret information regarding the nature of a particular problem. The second process is *specifying the most appropriate solution paths*. This specification may proceed from the application of convergent thinking, divergent thinking, or logical reasoning skills to information derived from the construction and representation of the problem. The third and fourth processes refer respectively to *the implementation of the chosen solution* and to *the monitoring and evaluation of the solution and its consequences*. Because leaders implement solutions within complex social environments, they need to apply a variety of cognitive and social competencies that promote solution implementation and the acquisition of information needed for effective monitoring and evaluation.

Table 2-2. Executive Leadership and Proposed Metacognitive Skills

Geiwitz (1993)

1. Problem detection
2. Problem representation
3. Selection of a problem-solving method
4. Strategic application of problem-solving methods
5. Evaluation of solution candidates
6. Recognition of errors
7. Resource allocation
8. Temporal monitoring
9. Social monitoring
10. Executive monitoring

Laskey, Leddo, & Besnick (1990)

1. Metagoal and causal map formation
2. Metaplan for building plans
3. Metaplan for evaluating plans and projecting their consequences

Markessini (1991)

1. Awareness of:
 - a. independent cognitive processes
 - b. cognitive style (e.g., MBTI)
 - c. how own cognitive characteristics interact with situation
2. Executive functions—use of:
 - a. self-management of the learning process
 - b. reflection upon experience
3. Executive functions—strategic control

Mumford, Zaccaro et al. (1993):

1. Problem construction
2. Information encoding
3. Category search
4. Category specification
5. Combination and reorganization of best-fitting categories
6. Idea evaluation
7. Implementation
8. Monitoring

Metacognitive skills refer not to particular cognitive abilities themselves (e.g., oral, written comprehension, verbal reasoning), but rather to the awareness and regulation of their application in understanding a problem, specifying a solution, and implementing and evaluating best-fitting strategies. That is, for each of the aforementioned processes, metacognitive problem solving skills reflect an expertise in knowing what cognitive abilities are applicable in particular problem domains and in evaluating the products of their application. For example, regarding problem definition or construction, cognitive reasoning skills (e.g., deductive reasoning) are used to generate a particular understanding of a problem from available information. The addition of metacognitive skills helps the problem solver to evaluate the constructed problem both in terms of the processes that led to its derivation and of its fit to the extant problem domain (e.g., “Is this the ‘correct’ or best way to construct this problem?”). The value of metacognitive skills then is to facilitate flexibility in creative problem solving, particularly in how information is used and in the selection of solution strategies that correspond to different types of problems (Davidson et al., 1994; Jausovec, 1994b).

The studies cited in Table 2-2 on executive metacognition complements the work initiated by ARI on Stratified Systems Theory. They represent an important extension in terms of the specific thinking skills required by executives to build the frames of reference necessary for successful organizational action. Each research program, however, represents a preliminary stage in theory and conceptual development, and further integrative work is presumably necessary.

Interactive Complexity Theory

The major leader characteristic described by interactive complexity theory is the structural property of an individual's information-processing orientation, or his or her degree of cognitive complexity. To understand Streufert's concept of cognitive complexity and its application to leadership, several components of information-processing structure need to be defined. The most elemental of these is *dimension*, defined as “a

bipolar scale having two or more points of discrimination among stimuli" (Streufert & Swezey, 1986, p. 16). Organizational examples of possible managerial dimensions are "profit" and "productivity." A second structural component is *discrimination*, or "the process of dividing (or the degree to which division has been accomplished) a cognitive bipolar dimension into subsections for the placement of stimuli that have relevance to the endpoints of that dimension" (Streufert & Swezey, 1986, p. 16). Thus, for example, the division of a cognitive space representing productivity into different degrees from very low or very poor to very high or excellent reflects the process of discrimination. This process also represents a basic conceptualization of the environment, containing both elemental differentiation (in terms of multiple dimension points) and integration (a conceptual meaning uniting these points).

The next two components of information-processing structure, differentiation and integration, represent the basic factors in cognitive complexity. Differentiation is defined as "the process of dividing a cognitive or conceptual space . . . into two or more orthogonal or oblique (but nearly orthogonal) bipolar dimensions, systems, or subsystems" (Streufert & Swezey, 1986, pp. 16-17). Here, an individual begins to conceptualize the environment using multiple dimensions. Thus, a manager who understands his or her responsibilities in terms of work production and personnel development has specified two separate work dimensions and has displayed some differentiation. The process of combining or relating these dimensions into a single comprehensive perspective; that is, "to produce an outcome that is determined by the *joint* (weighted or unweighted) demands of each dimension, system, or subsystem involved" (Streufert & Swezey, 1986, p. 17), is *integration*. Note that integration cannot occur without some degree of a priori differentiation.

Cognitive complexity represents the level of both differentiation and integration applied by an individual to one or more conceptual domains. A person who is high in cognitive complexity would possess a highly differentiated and integrated cognitive space; a person with low cognitive complexity is likely

to operate with fewer dimensions (perhaps even unidimensionally), with little differentiation and integration.

Streufert and Swezey (1986) made a distinction between hierarchical and flexible integration that is critical for understanding effective executive leader thinking. Hierarchical integration represents a differentiated and integrated cognitive space in which the established relationships among the dimensions are stable. In essence, such integration represents a fixed, albeit complex, view of the world. Flexible integration occurs when the relationships among differentiated and integrated dimensions in cognitive space are perceived as varying in response to environmental dynamics.

Streufert and Swezey (1986) argued that strategic thinking involves a high level of flexible, integrative thinking. Executives who employ such thinking bring multiple dimensions of the organizational space together into a coherent whole that remains adaptive to significant environmental changes. Thus, such executives develop an understanding that incorporates various elements of their organizations, their competitors, present environmental influences, and future trends related to their stakeholders. This understanding remains a flexible one to accommodate significant conceptual changes in any and all of the dimensions in their conceptual model.

This skill is fairly compatible with the conceptual capacity notion proposed by Stratified Systems Theory. Indeed, Jacobs and Jaques (1991) used the terminology of Interactive Complexity Theory to describe the changes in leader thinking across organizational levels. However, Streufert and Swezey (1986) offered two other distinctions that are not made explicit by Stratified Systems Theory. One is that the complexity in leadership is not synonymous with complexity in decisionmaking. Leadership complexity refers to differentiation and integration regarding different leader styles (e.g., initiating structure, consideration, production emphasis, persuasiveness), while decisionmaking complexity refers to the use of differentiation and integration in strategy formation and planning. Leaders can be complex in terms of different styles, but not necessarily in terms of decisionmaking. The reverse can

also be true. Streufert and Swezey proposed that successful high-level executives should be cognitively complex in both of these areas.

A second distinction concerns the “downside” of high-level flexible integration. High integration is not possible without a significant degree of differentiation. Also, a high degree of flexibility could result in an individual continually adjusting his or her conceptual model in response to relatively minor environmental variations. Accordingly, Streufert and Swezey (1986) point out that individuals employing a higher level of flexibility and integration in their decisionmaking may inhibit their reaching a closure point, even a temporary one. They imply (although do not explicitly state) that for effective executive thinking, high-level flexible integrative complexity is necessarily combined with a significant degree of self-discipline that forces decision closure when warranted by environmental exigencies.

Summary and Evaluation

Key Questions for Evaluation of Conceptual Complexity Theories on Requisite Executive Characteristics:

- What individual characteristics distinguish executive from lower level leaders?
- What individual characteristics distinguish successful from unsuccessful executive leaders?

Both Stratified Systems Theory and Interactive Complexity Theory follow Day and Lord's (1988) suggestion that a systematic theory of executive leadership specify individual differences in leader ability. Both theories also emphasize substance over style in terms of leadership. Day and Lord argued that executive leadership theories need to go beyond a focus on leadership styles (e.g., consideration and initiation of structure) to emphasize more cognitive factors such as analytic and perceptual abilities as well as skill in decisionmaking. This is precisely the orientation of the conceptual complexity theories of

leadership (e.g., see Lewis & Jacobs, 1992, pp. 122-126, on leader style versus conceptual capacity).

Stratified Systems Theory specifies a set of technical, interpersonal, and conceptual skills that separate executive from lower level leaders (see Table 2-1). Interactive Complexity Theory focuses on a single differentiating factor—cognitive complexity. Both theories are congruent in that effective executive leadership is determined primarily by the degree of cognitive conceptualization skill possessed by the executive. Stratified Systems Theory is rather explicit in placing less importance on personality and motivational factors (Sashkin, 1992). That is not to say that these factors are irrelevant to executive performance. However, Lewis and Jacobs (1992) argued that all executives will have already demonstrated the requisite motivational and dispositional qualities; conceptual capacity is proposed to explain the most variance in executive performance. While this is consistent with the major task assigned to executives to facilitate organizational performance; i.e., the construction of a comprehensive and integrated frame of reference or cognitive map to guide collective action, other senior leadership theories stress a broader constellation of individual qualities as determinants of such variance. Indeed, Interactive Complexity Theory suggests that cognitive complexity needs to be combined with a dispositional orientation that facilitates decision closure at the appropriate time for effective decisionmaking.

The differences between these two theories are, of course, empirical questions. They should not detract from the observation that each theory provides a level of conceptual sophistication in its specification of executive leader skills and capabilities. Two remaining issues for these theories of executive leadership are the measurement and development of these capacities.

MEASUREMENT OF EXECUTIVE CONCEPTUAL COMPLEXITY

Stratified Systems Theory

Given the importance of conceptual capacity for senior leadership work, a central concern is the measurement of such capacities. Indeed, some criticism of Stratified Systems Theory has focused on the relative inattention paid to measurement of cognitive power (Streufert & Swezey, 1986). The measurement of this capacity is not likely to be amenable to traditional survey or multiple choice methodologies (Jacobs & Jaques, 1990; Streufert & Swezey, 1986). Instead, the more appropriate measurement format may be one that includes *constructed response* tasks, defined by Bennet (1993a, p. 100) as "any task for which the space of examinee responses is not limited to a small set of presented options. As such, the examinee is forced to formulate, rather than recognize, an answer." Several researchers have argued that such measures provide more effective assessments of higher order cognitive skills, such as conceptual capacity, than multiple choice items (Ackerman & Smith, 1988; Birenbaum & Tatsuoka, 1987; Sebrechts et al., 1991; Ward, Frederickson, & Carlson, 1980). Gillian Stamp (1988) developed a measure of cognitive power, called the Career Path Appreciation technique, that combines constructed response tasks with extensive interviews. ARI has recently sponsored research in the development of the Strategic Leadership Development Inventory (Army Research Institute for the Behavioral and Social Sciences, 1994; Industrial College of the Armed Forces, 1994), that uses a multiple choice format, but also has the advantage of including the personal perspective of the rated leaders as well as those of the leader's peers, superiors, and subordinates. Also, the SLDI assesses attributes in addition to cognitive conceptualization skills. The characteristics and structure of both measures are described in this section. Evidence regarding their psychometric properties is presented in Chapter 3.

Career Path Appreciation. The Career Path Appreciation (CPA) technique uses primarily an interview methodology, combining three separate assessment tasks, to identify an

individual's current level of conceptual capacity. Then, based on this score, the assessee's age, and Jaques's maturation curves, a prediction is made of an individual's maximum attainable level of capacity and work level. Thus, the CPA produces an index of both current and potential cognitive work capacity.

Three tasks make up the CPA. One is the *phrase selection task*. Here, assessees are given nine sets of six cards in which each card describes an approach to solving a problem or completing a work assignment. Each set reflects six work levels proposed by Stratified Systems Theory. For example, one set contains the following phrases (Lewis, 1995, p. 15; from Stamp, 1986):

- Work to a complete set of instructions (Level I)
- Work within a given framework (Level II)
- Work with connections even if particular links are unclear (Level III)
- Work in abstracts and concepts (Level IV)
- Work with a minimum of preconceptions (Level V)
- Define the horizons of the work (Level VI)

Assessees are required to select the cards that reflect their most and least comfortable approaches to work; they are also asked to explain and discuss their choices. The choices, and particularly the corresponding discussions, provide information used to determine the assessee's current conceptual capacity.

Another task in the CPA is the *symbol sort task* (Bruner, 1966) in which assessors are presented with four target cards, three with geometric symbols on them while the fourth card is blank. They are then given a pack of symbol cards and asked to sort them under the four target cards according to self-developed sorting rules. Feedback is given by the assessor throughout the task regarding the correct (or incorrect) placement of symbols under the three "picture" target cards, but not for any sorts to the blank card. Success on this task requires abstracting and conceptualizing the appropriate sorting rules.

The third part of the CPA is a work history interview in which assessees provide information regarding their prior and current work positions and assignments. They are asked to indicate the maximum time spans and work challenge for each position. This information is considered useful not only in assigning current capacity values, but also predicting the growth in these values over time (Lewis, 1995).

The scoring of the CPA requires a strong understanding of Stratified Systems Theory (Jacobs & Jaques, 1991). The results from the three tasks are analyzed to place the assessee in one of seven levels, each having categories of high, medium, and low; thus, the range of scores on the CPA is 1 to 21. The CPA data can also be used in combination with Jaques's (1986) maturation curves to determine future potential conceptual capacity.

Strategic Leader Development Inventory. The Strategic Leader Development Inventory (SLDI) is based not only on Stratified Systems Theory, but also on Kegan's (1982) Stage Theory and on work by Hogan, Raskin, and Fazzini (1990) on the attributes of ineffective leaders. This inventory contains attributes derived from Stratified Systems Theory that facilitate long-term envisioning, consensus building, and team building. Attributes on the SLDI that were derived from Kegan's theory reflect high levels of adult maturity. Stage theory proposes four stages of gaining maturity, defined in terms of developing a broader, more realistic, and objective personal and world perspective. Stage 4, which is presumably characteristic of the successful strategic thinker, includes individuals who "have the capacity to operate their own judgmental processes unconstrained by the standards, values, or points of view of others" (Lewis & Jacobs, 1992, p. 128).

The SLDI contains an assessment of negative attributes derived from research on managerial derailment (Hogan et al., 1990; Lombardo, Ruderman, & McCauley, 1987; McCall & Lombardo, 1983). Hogan et al. (1990) defined three personality profiles of flawed or ineffectual managers. The first is the *high likability floater* who has high social skills, is congenial and easy to get along with, and almost never causes disruptions; however, because they have low ambition and no direction, they (and the

units they manage) do not perform well. The second profile is that of *hommes de ressentiment*, or the manager who is outwardly charming and competent, but who harbors a deep resentment toward others and seeks avenues of revenge. The final profile is the *narcissist*. Managers with such profiles are intolerant of criticism, resist accepting suggestions from others, take disproportionate credit for success, avoid responsibility for failure, and are overconfident in their judgements (Hogan et al., 1990). Each of these profiles limits movement to and performance in strategic leadership positions.

The SLDI is a 360 degree assessment inventory. That is, the inventory is completed by the target leader, as well as by four of his or her subordinates, three peers, and three superiors. Certain attributes are rated only by a subset of these raters (i.e., by self, peer, superior, or subordinates), while other attributes are evaluated by all raters. This assessment approach assumes that each of these constituencies will have overlapping as well as differing perspectives of the target leader, thus producing a complete picture of the leader's strength and weaknesses. Table 2-3 presents the attributes assessed by the SLDI, with corresponding definitions and rating source.

Interactive Complexity Theory

Streufert and Swezey (1986) described a number of measures developed to assess flexible integrative complexity. These include the Sentence Completion Test (Schroder & Streufert, 1962), the Impression Formation Test (Streufert & Driver, 1967), Textual Analysis (Suedfeld & Rank, 1976), as well as methods reflecting post hoc analysis of decisionmaking structure (e.g., time event matrices, postdecision interviews, experimental simulations). A full description of all of these measures is beyond the scope and intent of this report. Also, with few published exceptions (Streufert, 1983, 1984; Suedfeld, Corteen, & McCormick, 1986), these measurement strategies have not been used to assess cognitive complexity in executive managers. Accordingly, only very brief descriptions of these measures will be provided. Interested readers are referred to Streufert and

Table 2-3. Strategic Leadership Development Inventory: Attributes

Conceptual Skills and Attributes

Factors	Sources
Conceptual Flexibility	Superiors, Peers, Self
Political Sensibility	Superiors, Peers, Self
Long-Term Perspective	Superiors
Quick Study/Perceptive	Peers
Complex Understanding	Subordinates

Positive Attributes

Factors	Sources
Empowering Subordinates	All
Strong Work Ethic	Superiors, Self
Personal Objectivity	Subordinates, Self
Professional Maturity	Superiors
Team Performance Facilitation	Peers

Negative Attributes

Factors	Sources
Technical Incompetence	All
Explosive, Abusive	All
Arrogant/Self-Serving/Unethical	All
Rigid/Micromanages	Superiors, Peers, Self
Inaccessible	Subordinates

Note: Adapted from *A guide to the Strategic Leader Development inventory*, 1994, Washington, DC: National Defense University, Industrial College of the Armed Forces.

Streufert (1978) and Streufert and Swezey (1986), as well as to original sources for more in-depth descriptions.

The Sentence Completion Test presents respondents with sentence stems ("When I am criticized . . .") and requires them to generate additional sentences to complete each stem. Responses are then rated by expert judges for degrees of cognitive complexity. Figure 2-3A presents sample responses provided by Streufert and Swezey (1986) that reflect low cognitive complexity, differentiation, and integration. The Impression Formation Test, based on Asch's (1946) classic study, requires respondents to write descriptions of three persons. One person has the characteristics of "intelligent," "industrious," and "impulsive." The second has the characteristics of "critical," "stubborn," and "envious." The third stimulus person is described with all six of these characteristics. Cognitive complexity is defined by how completely a respondent integrates these qualities that differ in affective tone into a coherent portrait of a single person. Individuals with low cognitive complexity may deny the possibility of integration. Figure 2-3A presents sample responses offered by differentiators and integrators. Textual analysis is an adaptation of the Sentence Completion Test that is used to estimate differentiation and integration from archival and written material. For example, Suedfeld et al. (1986) derived estimates of the cognitive complexity scores of six Civil War generals (Burnside, Grant, Hooker, Lee, McClellan, and Meade) from official dispatches, battle orders, and published letters from Civil War archives.

These measures of integrative complexity require substantial subjective interpretation by expert raters of either cued or uncued written material. Streufert and Swezey (1986) described other techniques that involve the analysis of decisionmaking to derive scores of integrative complexity. In essence, these procedures involve individuals engaged in decisionmaking either in a real time setting or in a computerized experimental simulation (Swezey, Streufert, Criswell, Unger, & van Rijn, 1984). Then, data from post hoc interviews and/or from an analysis of the alternatives selected at various points in a decisionmaking process are used to derive a "time-event" matrix.

Sentence Completion Test: "When I am criticized . . ."**Low Cognitively Complex Response:**

When I am criticized, I am usually wrong. I appreciate criticism because I learn from it. Most of the time people who criticize me have my welfare in mind. Particularly when the criticism comes from an authority I will change my ways.

Differentiated Response:

When I am criticized, it typically means that the other person has a different view of thinking than I do. Maybe he grew up in a different environment and learned to think differently. Probably his way of thinking is okay—but so is mine. Most of the time I ignore that criticism.

Integrated Response:

When someone criticizes me, I listen carefully. I don't necessarily agree with all that person may say, but there are parts of these views that may be relevant to what I am doing or thinking. Sometimes I combine some of their views with mine.

Impression Formation Test: "Describe a person with the following attributes—intelligent, industrious, impulsive, critical, stubborn, envious"**Differentiated Response:**

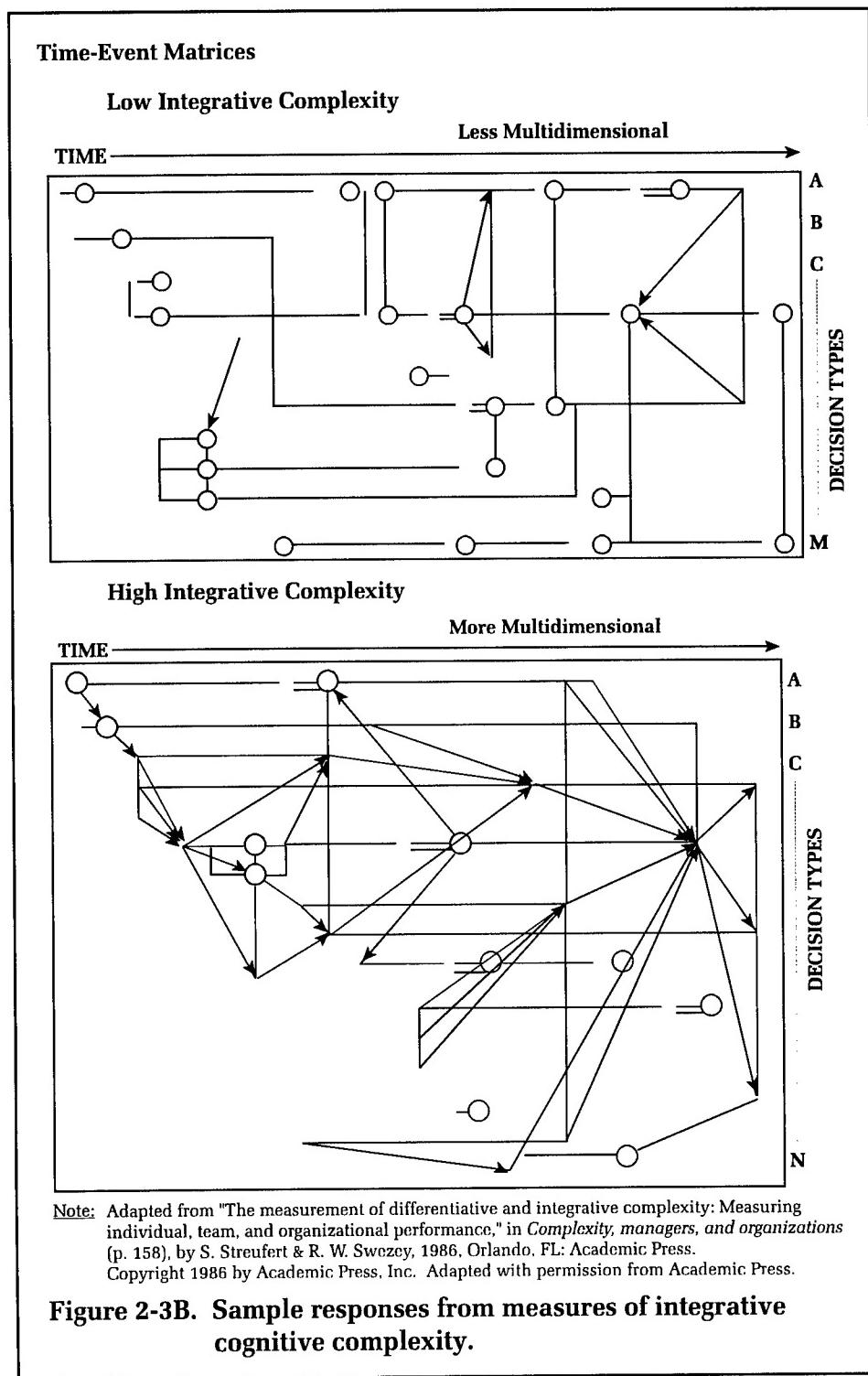
This person is a good worker who makes quick decisions, and everyone at work likes him. But when he comes home to his wife and children, he can be very nasty.

Integrated Response:

Such a person makes quick decisions. They are usually quality decisions because she is bright and has gained much experience. She is critical of those who work for her because she is jealous of her superiors because she wants to advance quickly—a goal which she pursues relentlessly and with great effort.

Note: Adapted from "The measurement of differentiative and integrative complexity: Measuring individual differences in cognitive complexity," in *Complexity, managers, and organizations* (pp. 144-147), 1986, by S. Streufert & R. W. Swetsey, Orlando, FL: Academic Press. Copyright 1986 by Academic Press. Adapted with permission from Academic Press.

Figure 2-3A. Sample responses from measures of integrative cognitive complexity.



This matrix is a representation of action sequences plotted along the dimensions of time and decision type. Decision type refers to different categories of actions that can be selected in the course of a problem. Examples of military decision types would be troop movement decisions and air support decisions (Streufert & Swezey, 1986, p. 152). The structure of decisionmaking is plotted by indicating the actions (denoting particular decision types) selected at particular points in time. When a decision at one point in time is considered to be related to a decision at another point in time, they are connected by an arrow; diagonal arrows in the matrix represent connections between different decision types. A cognitively complex response is reflected in proactive strategy based decisionmaking (i.e., interrelated and sequentially planned decisions), while low complexity is reflected in reactive decisionmaking with fewer connections among decisions of one type or among different decision types. Sample matrices provided by Streufert and Swezey (pp. 158, 193) that denote low- and high-integrative complexity are illustrated in Figure 2-3B.

Summary and Evaluation

A common quality in the measures of complex thinking capacities that are provided by researchers in both Stratified Systems Theory and Interactive Complexity Theory is that they utilize constructed response tasks. Such tasks require that respondents generate responses to a stimulus, rather than select responses from a predetermined set. Studies on the measurement of complex cognitive abilities and skills suggest that constructed response tasks resemble actual problem solving more closely (Bennett, 1993a; Bennett, Rock, Braun, Frye, Spohrer, & Soloway, 1990; Sebrechts et al., 1991) and are more effective for such assessment (Ackerman & Smith, 1988; Birenbaum & Tatsuoka, 1987; Sebrechts et al., 1991; Ward et al., 1980) than multiple choice or inventory tasks. However, such measures are burdened with considerable administrative costs as well as significant potential for error. Several of the measures described here are fairly time consuming, requiring several hours of assessment time per individual (e.g., CPA, derivation of

decisionmaking time event matrices). Also, almost all of the measures described require some judgment and evaluation by expert raters. Indeed, Jacobs and Jaques (1991) stated that the assessment of responses to the CPA requires thorough knowledge of Stratified Systems Theory and a conceptual capacity of Level IV or higher in Jaques's classification. This puts a significant limitation on the use of this measure as a widespread executive assessment tool. The same concern is applicable to a lesser degree to Strefuer's cognitive complexity measures.

Another concern with measures using constructed response tasks is with their construct validity (Bennett, 1993a, 1993b). When these tasks require the generation of a complex series of responses, they may reflect the influence of other motivational and dispositional variables; that is, they may assess variables in addition to complex cognitive skill. For example, the CPA includes a work history interview that is designed to assess an interviewee's degree of comfort in the level of work complexity required of prior positions. Responses to such prompts may reflect a number of qualities in addition to conceptual skill, such as mastery and achievement motives as dispositional flexibility and tolerance of uncertainty. Likewise, the coding guidelines of the phrase selection task describe personal preferences in problem solving as part of the definition of each level of functional capacity (McIntyre, Jordan, Mergen, Hamill, & Jacobs, 1993). Again, this suggests that responses may include not only conceptual skill, but also other dispositional, stylistic, and/or value-orientation qualities. Nonetheless, this is a validation question and therefore an empirical one; indeed, several studies provide some psychometric evidence in support of the CPA (Lewis, 1993, 1995; McIntyre et al., 1993; Stamp, 1988).

The time event matrices raise different validity concerns. Here, cognitive complexity appears to be defined in terms of how integrated a decisionmaker's strategic plan is in a series of problem domains. That is, structural differences in decisionmaking are used to denote differentiated and integrative complexity. The problem with this technique, though, is one of circularity—cognitive complexity is defined (or operationalized) as integrated strategic planning, which is hypothesized as a

consequence of complex thinking skills. Thus, careful attention needs to be directed at the use of this technique in the context of executive skill assessment.

These concerns notwithstanding, the measures described here provide a potentially strong methodological basis for the evaluation of executive performance and skill requirements proposed by conceptual complexity theories of executive leadership. Further, to the degree these measures demonstrate predictive validity, they may serve as part of an effective executive assessment and development program.

An effective theory of executive leadership should provide prescriptions for the development and training of budding executives. Some of the developmental issues and ideas raised by Stratified Systems Theory and Interactive Complexity Theory are described in the final section of this chapter.

LEADER DEVELOPMENT

Stratified Systems Theory

Jaques, Clement, Rigby, and Jacobs (1986) provided the following formula for defining an individual's level of work capability (LoC)

$$\text{LoC} = (\text{PE} * \text{CP} * \text{O}),$$

where PE represents *psychological equipment*, and includes the knowledge, skills, values, and temperament required for work completion; CP represents cognitive power; and O represents the opportunities and developmental experiences an individual has had to acquire requisite skills and knowledge. This formula, together with other statements by Stratified Systems Theory theorists (Jacobs & Jaques, 1990; Jaques, 1986; Lewis & Jacobs, 1992), suggest several important points regarding leader development. One of these, already mentioned earlier in this chapter, is the relative immutability of potential and actualized cognitive power. Thus, Jaques et al. (1986) note that "a person's cognitive power sets the maximum level of work of any kind that

he/she would be capable of even *with maximum opportunities for the development of the necessary [psychological] equipment*" (p. 23, italics added). This means that without sufficient constitutional equipment, no amount of development effort can help lower level organizational leaders rise or be promoted into executive leadership positions. This argument puts significant weight on executive selection relative to executive development. Or, at least, selection needs to precede developmental efforts at various points in a leader's career. Selection criteria would focus primarily on the level of displayed and potential conceptual capacity (Lewis & Jacobs, 1992).

While potential conceptual capacity is fixed, it does mature over a life span according to the Jaques's (1986) growth curves. Jacobs and Jaques (1990) argued that executive development interventions ought to focus primarily on the conceptual skill development. However, a developmental issue regarding the maturation of this capacity in an individual with high potential is that there will often not be sufficient, if any, opportunities for its utilization early in one's career. Organizational work at the levels likely to be occupied at this career point will not require the conceptual skills possessed by such individuals. Indeed, the utilization of these skills may actually be counterproductive (Streufert & Swezey, 1986). This is where proclivity, or an individual's inclination toward mental model building, plays an important role because junior leaders with a high conceptual proclivity are likely to be engaging in such activities early in their careers even in the absence of extrinsic rewards to do so (Jacobs & Jaques, 1990). According to Stratified Systems Theory, this proclivity, then, is likely to be influential for a leader's progress along predicted conceptual maturation paths.

Lewis and Jacobs (1992) also argued that the development of conceptual capacity proceeds slowly, with milestones occurring when individuals reach the limitations of their current constructed models of experience. This failure prompts a reconceptualization of a more complex world that in turn represents a higher level of cognitive power. This argument suggests that effective developmental experiences are likely to be those that push leaders to the limit of and beyond their current

frames of reference. Along these lines, Lewis and Jacobs (1992, p. 136) suggested that,

The heart of managerial development, therefore, should be the planned assignment of high-potential leaders and managers to successively more challenging work roles where a mentor is present who can help the individual better understand the new, more complicated world in which the new manager must now operate.

The above formula for individual capability is a multiplicative one, meaning that even with sufficient cognitive power and the opportunity for potential maturation, ascendance to executive leadership positions is still not possible without the requisite skills, knowledge, and temperament. Jaques et al. (1986) indicated that these factors are modifiable and therefore are appropriate bases of executive development efforts. Note, however, that Stratified Systems Theory argues that the particular knowledge and skills required will differ across organizational levels. Thus, developmental efforts need to be targeted to the psychological equipment needed by a leader advancing to the next organizational level. This recommendation, together with those for the maturation of conceptual capacity, suggests that leader development is a career-long endeavor that should feature (a) specific instructional interventions linked to skill development and knowledge acquisition at particular organizational levels; (b) opportunities for the practice of newly acquired skills and knowledge; and (c) the assignment of budding executives into work roles that force them to continuously revise their cognitive maps and models of their operating environment. Taken together, these development opportunities appear to be the most appropriate for the variables linked by Stratified Systems Theory to executive effectiveness.

Interactive Complexity Theory

Streufert and Swezey (1986) did not offer a set of prescriptions or a model for executive leader development. They suggested that cognitive complexity can be trained by presenting individuals with evidence of multidimensionality in a

conceptual domain. This suggestion resembles Jacobs and Lewis's (1992) prescription that leader development include the role of a mentor to encourage a broader world perspective. Complexity in a specific domain may also be trained if other conceptual domains constructed by an individual are already differentiated and integrated. In such a circumstance a form of analogue reasoning can be used to foster the discovery of dimensions in a previously undifferentiated conceptual space. However, little, if any, empirical research has been completed to evaluate the effects of these training strategies on the development of integrative complexity, the requisite capacity for executive work. Thus, these strategies are, at best, speculative at this point.

Summary and Evaluation

A central issue in the complex cognition theories of leadership is the question of whether requisite cognitive capabilities can be developed, and if they can, whether the investment costs of such training are so prohibitive that primary emphasis should be placed on selection. Stratified Systems Theory adopts the position that potential conceptual capacity is fixed early on, but provides a substantial rationale for executive development interventions by arguing that career-long efforts are necessary to actualize this potential. Further, other requisite leader skills are not fixed and therefore benefit from targeted training and development. This theory then complements its postulates on the nature of executive performance requirements and requisite executive skills with corresponding prescriptions for executive development. The result is a well-rounded and coherent conceptual model of executive leadership.

SUMMARY

The conceptual evaluation of the models described in this chapter, particularly Stratified Systems Theory, indicates that they contain several of the elements prescribed by Day and Lord (1988) for a theory of executive leadership. Stratified Systems Theory provides a comprehensive conceptual framework for

understanding the nature of executive leadership and the individual characteristics required for such work. Its model of leader performance requirements specifies qualitative shifts in these requirements across organizational levels. Thus, executive leadership cannot be explained using a framework for understanding lower level leadership. Further, the requisite leadership skills differentiate not only between lower and upper level organizational leaders, but also between those managers who are effective at the top of the organization and those who are not. Stratified Systems Theory also provides a model and set of prescriptions for the development of key senior leader capabilities. Finally, studies by Stamp (1988) and by ARI have produced measurement strategies for the assessment of these capabilities. Accordingly, this theory provides an elegant and testable framework for understanding executive leadership. Interactive Complexity Theory is a more narrow approach, but it also provides testable propositions regarding executive performance requirements and requisite skills. Chapter 3 provides a summary and evaluation of empirical studies that provide evidence bearing on these theories.

Chapter 3

Conceptual Complexity Theories of Executive Leadership: Empirical Review and Evaluation

Chapter 2 presented a theoretical review and evaluation of two conceptual complexity theories of executive leadership. Chapter 3 examines empirical research that either offers direct tests of some postulates derived from these theories or provides data that are indirectly relevant to these postulates. Some of the elements and components of Stratified Systems Theory were first presented over 30-40 years ago (Jaques, 1956, 1964; see also Jaques, 1976). However, there has not yet been a comprehensive review and evaluation of empirical support for its propositions. The Interactive Complexity Theory has only recently been extended to executive leadership, and thus has generated less research to date in this domain. Accordingly, the primary focus of this chapter is on Stratified Systems Theory.

This chapter organizes the empirical research bearing on these models around the themes of (a) executive performance requirements, (b) requisite executive characteristics, (c) measurement of conceptual complexity, and (d) leader training and development interventions that target cognitive skills. Further, the research from both military and nonmilitary domains is examined to determine the generalizability of particular findings across these domains.

A significant body of the research on executive leadership completed from the perspective of Stratified Systems Theory has been conducted under the aegis of ARI. Research sponsored by ARI on senior leadership has been completed through various applied and basic research programs; by in-house and contracted personnel; and within military, civilian, and joint settings. An initial step in the review that has culminated in this report was

to catalogue ARI-based research in the form of an annotated bibliography and describe its parameters. This effort is described in the first section of this chapter. Then, this research is combined with studies using nonmilitary samples and examined in the remaining sections.

PARAMETERS OF ARI RESEARCH ON EXECUTIVE LEADERSHIP

The Annotated Bibliography

The collection of research products for the annotated bibliography proceeded from two major sources: (a) interviews with various personnel at ARI and at other research organizations who completed some of the research, and (b) a systematic search through the Defense Technical Information Center and other computerized databases. This effort produced an extensive reference list of technical and research reports, journal articles, books, conference proceedings, instructional guides, and other products that could qualify for inclusion in the annotated bibliography. This list was then reviewed and articles were selected for annotation according to three criteria. First, the focus of the work had to be on senior organizational leadership. This was operationalized in the Army, for example, as leadership at the brigade level or higher (i.e., colonel through four-star general officer). Thus, studies on junior army leadership that focused primarily on the nature, skills, and development of noncommissioned and commissioned officers up to the rank of major or lieutenant colonel (e.g., Harman, Tremble, & Goodwin, 1993; Steinberg & Leaman, 1990a, 1990b; Tremble & Alderks, 1991; Twohig, Rachford, Savell, & Rigby, 1987) were not included for annotation. However, some studies that did examine officers at and below the rank of colonel were included because their primary purpose was to enhance understanding of senior level leadership in part by (a) using junior officers as a comparison group, or (b) examining the seeds of executive skill emergence in lower level officers (e.g., Mumford et al., 1993; Zaccaro, Marks, O'Connor-Boes, & Costanza, 1995; Zaccaro, Mumford, Marks, Connolley, Threlfall, Gilbert, & Fleishman,

1996). Likewise, other studies using samples of college students were included because their purpose was to examine prototypic assessment and executive developmental techniques (e.g., McIntyre et al., 1993; Mumford, Baughman, Supinski, Costanza, & Threlfall, 1993; Stewart & Angle, 1992).

The second criterion for inclusion in the bibliography was that the work was sponsored by ARI. This led to the inclusion of several book chapters and journal articles by both in-house and contracted personnel (e.g., Jacobs & Jaques, 1987, 1990; Jaques, 1986; Lewis & Jacobs, 1992; Stamp, 1986) in addition to ARI technical reports. This criterion also resulted in the inclusion of a book on strategic leadership by Phillips and Hunt (1992) because it summarized contributions to a conference on this topic that was jointly sponsored by ARI and the U.S. Army War College (AWC). However, several other works were excluded because they were not apparently sponsored by ARI, although their connection to the framework of ARI research was unmistakable (e.g., Jaques, 1989, 1990a, 1990b, 1990c).

The third criterion was that the work occurred within the previous 10 to 12 years (i.e., 1985-1996). This was because a major purpose of this review was to examine studies produced under the Army's increased commitment to executive leadership research. However, some notable papers were included in the annotated bibliography that were produced outside of this time frame because they had clear and direct linkages to the subsequent research (e.g., Haythorn, Kimmel, & Steinberg, 1985; Jacobs, 1983, 1985; Hunt, Osborn, & Martin, 1981; Mumford, 1986; Mumford, Yorkin-Levin, Korotkin, Wallis, & Marshall-Mies, 1986). Research on military and nonmilitary senior leadership that was produced before the 1980s was summarized in an annotated bibliography by Kimmel (1981), the parameters of which were reviewed by Haythorn et al. (1985). That bibliography serves as a useful comparison to the present work.

The application of these criteria to the original list of research products produced 47 papers for inclusion in the bibliography. Each of these products was reviewed and annotated. The contents of these articles were also coded for two

key research parameters. One parameter was whether the research product was a *literature review*, a *theoretical/conceptual piece*, an *empirical study*, or an *instructional guide*. Each study was assigned a number from 1 to 4, corresponding to these types. Empirical studies were also coded with a letter according to their methodology; that is, they were coded according to whether they used an *experimental* (a), *correlational* (b), *survey* (c), or *interview* (d) methodology. Research products were coded according to whether they covered one or more of four research themes.

These were:

1. The nature of work, roles, functions, and performance requirements at senior or executive leadership levels;
2. The individual knowledge, skills, abilities, and other characteristics (KSAOs) associated with effective senior leadership;
3. The measurement of these KSAOs as well as other key senior leadership concepts; and
4. The development and training of senior leadership.

The latter category contained both theories of leader development and expositions of developmental technology. Each study was assigned a number from 1 to 4, corresponding to these themes.

Parameter codes were attached in parentheses at the end of each annotation in the bibliography. The notation was in the following form:

$$(X_a / X_b),$$

where X_a referred to the code (1 - 4, a - d) denoting the type of research and X_b referred to the code (1 - 4) denoting study themes. Because research products may have contained multiple approaches and themes, these notations often included multiple codes.

The annotated bibliography, along with parameter codes, is shown in Appendix A. Entries in the bibliography were arranged alphabetically. It should be noted that some of these products have not yet been reviewed and approved as technical or

research reports. They are included for analysis in this report to provide as complete a body of work as possible. Indeed, researchers who have offered prescriptions for meta-analytical reviews of a body of research urge they should not rely solely on published research products (Hunter & Schmidt, 1990). Any and all products that bear on the topic being examined should be included. That guideline, within the constraints described earlier, was followed in the development of the annotated bibliography.

Research Characteristics

The number of research products summarized in the annotated bibliography clearly attests to the increased interest in military senior leadership by the U.S. Army and ARI. In his annotated bibliography of earlier senior leadership research, which covered a span of 43 years (1938 to 1981), Kimmel (1981) identified only 22 studies concerning senior leadership in military organizations. The present bibliography indicates over twice the number of such studies in approximately a quarter of the time. Kimmel's review also revealed an eclectic literature base without a common theoretical or conceptual framework. Much of the work at ARI has been consciously grounded in the conceptual framework provided by Jaques's Stratified Systems Theory (Jacobs & Jaques, 1987; Jaques, 1986; Jaques & Clement, 1991). Indeed, some of the sponsored work contributed directly to further evolution and refinement of this theory. Twenty-eight of the 47 entries (60%) were explicitly or derivatively based on Stratified Systems Theory. While this has the advantage of providing a coherent framework for research on senior leadership, a quality often lacking in other research on such leadership, the strengths and weaknesses of this research program are in large part linked to the strengths, scope, and possible weaknesses of Stratified Systems Theory.

Table 3-1 summarizes the characteristics of the research products included in the bibliography. The frequencies of products are indicated by topic area and by the approach of the study. Of the 43 papers in the bibliography, 8 (19%) were reviews of the literature; at least 2 reviews were found for each of

the research themes. Sixteen products (34%) were theoretical or conceptual in nature. Most of these covered two or more of the topic areas. The topics covered in these conceptual papers, in order of frequency, were leader KSAOs (13 or 30% of the total products in the bibliography); leader roles and functions (9 or 21%); development and training (6 or 14%); and measurement (3 or 6%).

Nineteen entries in the bibliography (40%) referred to empirical research products. Ten of these studies (53%) used experimental or correlational methodologies. The remainder used either survey or structured interview methodologies. Seven of the experimental and correlational studies focused on measurement issues while three focused on development and training approaches. The remaining four studies were concerned with leader roles and KSAOs. Alternatively, six of the interview and survey studies concerned leader roles, five also covered leader KSAOs, and nine examined measurement and leader training and development.

Four entries were instructional guides that were prepared by both in-house and contracted personnel for general use in the U.S. Army or for courseware at the AWC and the Industrial College of the Armed Forces. One or more of these guides covered each of the research themes.

Taken together, these data suggest the following general characteristics and conclusions about this research base:

1. The research base as a whole has been grounded in a coherent theoretical framework; i.e., Jaques's Stratified Systems Theory.
2. More than half of the products in this research base (60%) can be characterized as nonempirical (i.e., literature reviews, theoretical/conceptual papers, or instructional guides).
3. Slightly less than half of the empirical studies (47%) utilized primarily a qualitatively or descriptive research methodology.
4. The nature of senior leadership work and requisite KSAOs has received more attention (51% and 60%, respectively,

Table 3-1. Characteristics of Research on Senior Leadership by the U.S. Army Research Institute

Type of Paper	Topic Area				
	Total	Leader Roles	Leader KSAOs	Measurement	Development and Training
Literature Review	8	5	3	2	2
Theoretical/Conceptual	16	9	13	3	6
Empirical: Experimental	2	0	1	0	2
Correlational	8	1	2	7	1
Survey	1	0	0	0	1
Interview	8	6	5	2	6
Instructional	4	2	3	1	2
Total	47	24	28	15	20

Note: A study may cover multiple topics and/or include multiple empirical studies with different methodologies; in such cases, the study was included in more than one category. Thus, the frequency of studies presented in this table is more than the number of studies noted in the first column.

of the entries) than measurement (32%) or specific development and training strategies (43%).

A Research Model

This volume of research leads to the questions of (a) what is known about military executive leadership and its development? and (b) how does this knowledge compare to data from nonmilitary domains? Figure 3-1 presents a research model that integrates several critical elements of executive leadership. This model represents a conceptual framework describing the particular relationships and linkages that should be the focus of research on executive leadership. The model also includes executive performance requirements and competencies that are proposed by Stratified Systems Theory and Interactive Complexity Theory. The studies reviewed in this chapter are considered in the context of this model and in terms of whether

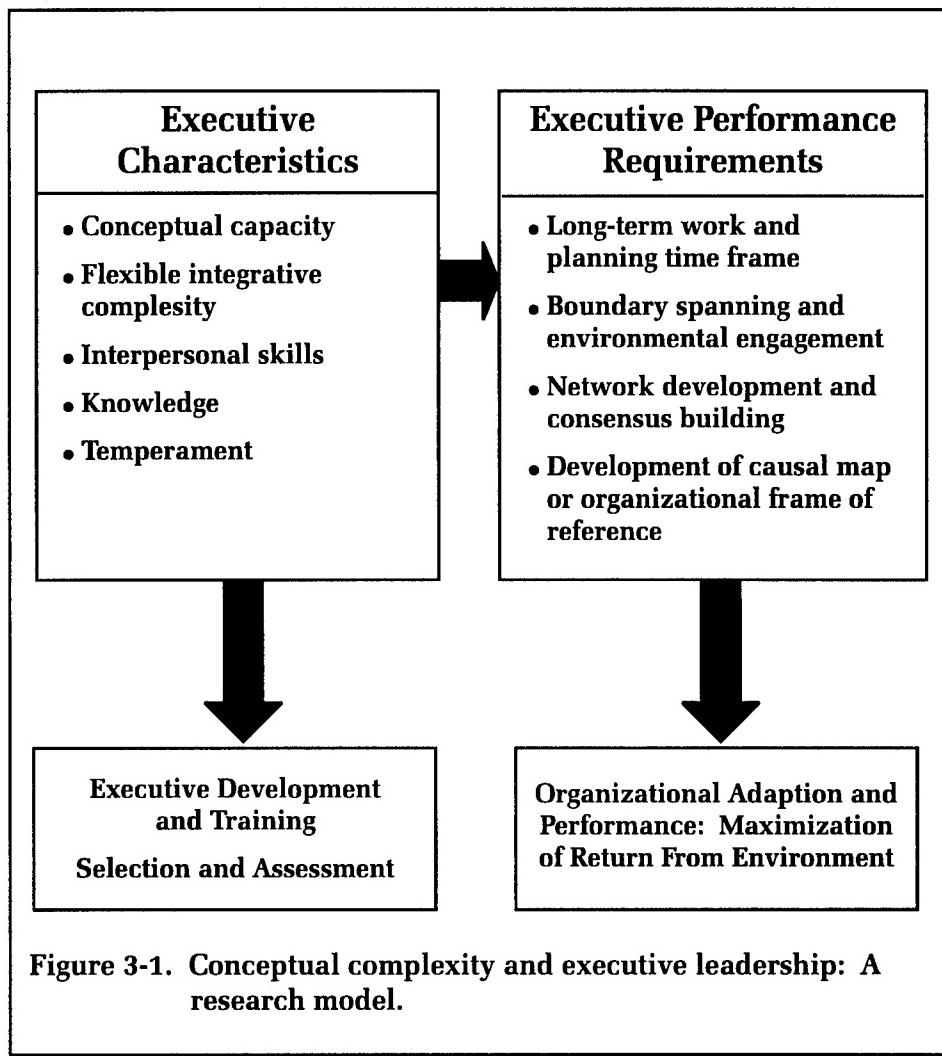


Figure 3-1. Conceptual complexity and executive leadership: A research model.

they contribute valid evidence for (a) the proposed contents represented in each box (e.g., do the performance requirements represented in the model accurately reflect actual executive level functioning?), and (b) the relationships proposed between each of the elements in the model (e.g., are the accomplishment of executive performance requirements significantly associated with organizational gain?).

As shown in the model, when executives successfully accomplish their work requirements, the organization as a whole should gain value in the form of better performance and

adaptation to environmental contingencies. Organizational performance can be operationalized in several ways (Campbell, Dunnette, Lawler, & Weick, 1970). However, Stratified Systems Theory is grounded in an open systems perspective of organizations, which suggests "that organizations survive only as long as they are able to maintain *negentropy*, that is, import in all forms greater amounts of energy than they return to the environment as product" (Katz & Kahn, 1978, p. 226). Executives "add value" to their organization when their performance of role requirements facilitates the organization's internal efficiency and, more importantly, contributes to maximizing the organization's return from its environment. Accordingly, research on executive leadership needs to demonstrate (a) critical executive performance requirements, and (b) the association between the accomplishment of these requirements and organizational gain.

The model in Figure 3-1 indicates four executive role characteristics that are specified prominently by conceptual complexity theories of executive leadership. These are (a) long-term work and planning time span, (b) boundary-spanning and environmental engagement, (c) network development and consensus building, and (d) development of an organizational causal map or frame of reference. These are presumably the means by which the executive adds value to the organization (Jacobs & Jaques, 1987, 1990, 1991; cf., Day & Lord, 1988). Therefore, their successful accomplishment should be empirically associated with indices of organizational performance.

According to conceptual complexity theories, the accomplishment of executive role requirements is determined primarily by an executive's level of conceptual capacity or flexible integrative complexity. This means that research on executive leader qualities needs to establish an empirical link between the possession of such qualities and the successful performance of these role requirements. These cognitive abilities, as well as other individual characteristics (e.g., interpersonal skills, knowledge, temperament), are the basis for the development of leader-assessment tools and developmental

interventions. Executive leadership research should be focused (a) on the reliability and validity of such tools, and (b) the validity and effectiveness of training and development interventions. The validity of such interventions should be defined in terms of gains in leader competencies, measured with validated assessment tools.

The model in Figure 3-1, then, suggests a number of research questions that are the focus of this chapter. These questions reflect the themes underlying the criteria for an executive leadership theory suggested in Chapter 1 (see Table 1-1). That is, they concern the differences between executive and lower level work, the relationship between executive work and organizational effectiveness, and the specification, measurement, and development of individual characteristics that promote executive performance. Each of these themes are covered in the remaining sections of this chapter. In each section, specific postulates are provided to anchor the review of relevant research. These postulates reflect the elements and relationships depicted in the research model and are derived from the conceptual complexity models.

THE NATURE OF EXECUTIVE PERFORMANCE REQUIREMENTS

The central premise of the conceptual complexity theories regarding executive leadership performance requirements is that information-processing demands increase significantly as one ascends the organizational hierarchy. This increase is attributed in part to the need for planning within longer time frames. The leadership elements of boundary-spanning with the external environment and coordination of multiple organizational units contribute additional information processing demands. These include (a) the need to develop comprehensive "worldwide" strategies and develop new small business units; (b) the need for continual environmental scanning; and (c) the need to examine, understand, and control how changes in one part of the organization affect other parts (Jacobs & Jaques, 1987; Jaques, 1989). These needs are met in part by the leader developing and communicating an integrated and flexible map of the causal and

system factors operating within the organization and in its environment. Finally, to plan effectively and institute organizational change, executives need to (a) develop effective information sources; (b) acquire the resources necessary for proposed changes; and (c) convince organizational constituencies of the appropriateness of specific planned changes. Accordingly, another executive leadership requirement is information network development and consensus building.

These theoretical statements from conceptual capacity theories of executive leadership lead to several specific predictions. The first set offered below refers to qualitative differences across organizational levels in four executive role or performance requirements:

1. *Executives engage in planning and policy creation within a longer time horizon than lower level leaders;*
2. *Executives interact more frequently with external organizational constituencies than lower level leaders;*
3. *Executives engage in more network development and consensus building activities than lower level leaders; and*
4. *Executives develop a broader and more comprehensive cognitive map or frame of reference of the organization and its environment than lower level leaders;*

The next set of postulates reflect the premise that the successful accomplishment of executive performance requirements adds value to the organization as a whole. Thus, each of the aforementioned requirements is hypothesized to significantly improve organizational performance and effectiveness. This is derived from Day and Lord's (1988) suggestion that a systematic executive leadership theory should describe how executive performance influences organizational performance. Accordingly, the following are also proposed:

5. *Long-term planning by executives is positively associated with organizational effectiveness;*
6. *Boundary-spanning activities by executives are positively associated with organizational effectiveness;*

7. Network development and consensus-building activities by executives are positively associated with organizational effectiveness; and

8. The quality of an executive's cognitive map or frame of reference is associated with organizational effectiveness.

These postulates were used to guide the empirical review of Stratified Systems Theory and Integrative Complexity Theory, although these theories differ on the definition and importance of some of them. For example, Streufert and Swezey (1986) argued that "time span is not a primary component of executive planning styles" (p. 78), and they question whether long-term planning is connected with organizational effectiveness (see also Mintzberg, 1973, 1975, 1994). Thus, the predictions regarding the frequency and efficacy of long executive planning time spans are more particular to Stratified Systems Theory. Also, Stratified Systems Theory articulates a greater range of differences in leadership performance requirements across organizational levels than most other theories (Hunt, 1991; Katz & Kahn, 1978). While most theories describe three levels of organizational leadership, Stratified Systems Theory proposes seven levels subsumed under three domains (see Table 2-1).

This is not by any means an exhaustive list of predictions regarding executive performance requirements that can be derived from these theories. Furthermore, some of these postulates may apply equally to other models of executive leadership described in subsequent chapters of this report (e.g., behavioral complexity models; strategic decisionmaking theories). Nonetheless, they represent the more critical elements of the conceptual complexity theories. Even where there is overlap with other models, the variables delineated here are proposed as influencing executive and organizational performance through different mediating mechanisms. That is, boundary-spanning, network development, and consensus building activities are associated with the construction and communication of complex cognitive models of the organization and its environment. Thus, the *means* by which executives add value to the organization are different in conceptual complexity models of executive leadership, even though some of the

antecedent conditions may be the same as in, for example, behavioral complexity models.

The examination of these postulates, as well as other aspects of the conceptual complexity theories, is organized in terms of research conducted in military and nonmilitary domains.

Military-Based Research

Table 3-2 summarizes empirical studies, using military samples, that provide data relevant for the aforementioned executive performance requirements. The majority of these studies employed an interview methodology. While this approach is a prominent one in executive leadership research (e.g., Isenberg, 1984; Kaplan, 1986; Kotter, 1982a, 1982b; Levinson & Rosenthal, 1984; Mintzberg, 1973), it is open to criticism regarding the internal validity of its conclusions. Also, the sample sizes in most of these studies were too small to allow the application of inferential statistics; thus their conclusions are based on descriptive analyses. These limitations and their implications are discussed in a later section of this chapter.

The studies by Harris and Lucas (1991; also summarized in Jaques et al., 1986) and Lucas and Markessini (1993) examined military general officers at the top four organizational strata defined by Stratified Systems Theory. Markessini, Lucas, Chandler, and Jacobs (1994) examined 27 U.S. Army civilian executives who were members of the Executive Service (ES) and Senior Executive Service (SES) (corresponding to Strata VI and VII leaders, accordingly to Stratified Systems Theory). The executives in each sample participated in structured interviews to determine (a) the nature of performance requirements at their respective organizational levels, and (b) the skills necessary to complete these requirements. The differences in reported role and performance requirements across levels are of particular interest for this section. Reported differences in requisite leader skills and competencies will be described in a later section of this chapter.

Other studies that focused on military leadership performance requirements were Stamp (1986), Rigby and Harris

Table 3-2. Summary of Empirical Studies Examining Executive Performance Requirements in Military Domains

Study	Study Participants	Type of Study	Findings
1. Harris & Lucas (1991)	8 four-star general officers, 33 three-star general officers	Structured interviews	Four-star officers reported longer work time spans and more boundary-spanning requirements than three-star officers. Both groups of officers cited comparable role requirements for network development, consensus building, and complex frame of reference.
2. Lucas & Markessini (1993)	48 one-star general officers, 26 two-star general officers; compared with sample from Harris & Lucas (1991)	Structured interviews	Recoded data from Harris and Lucas (1991) and found that one-, two-, and three-star officers reported similar task, planning, and maximum planning time spans. Maximum planning times for four-star officers were higher. One-star and two-star officers also reported less boundary-spanning requirements, similar requirements for network building and consensus development, and greater need for knowledge of total Army system than higher-level officers.
3. Markessini, Lucas, Chandler, & Jacobs (1994)	27 members of Executive Service and Senior Executive Service	Structured interviews	Civilian executives reported executive performance requirements of relatively long work time spans, boundary-spanning activities, consensus building and network development, and developing broad organizational and environmental understandings. Their work requirements are reported as comparable to their uniformed counterparts.
4. Rigby & Harris (1987)	61 military and civilian leaders from Program Management Offices (PMOs) and Major Subordinate Commands (MSCs)	Structured interviews	MSC leaders operated within longer time frames and engaged in more boundary-spanning activities than their subordinate leaders.
5. Stamp (1986)	168 women managers in business, government, nursing, and the U.S. military at multiple organizational levels	Structured interviews	Described institutional barriers to career paths for women and as they move into organizational strata requiring higher cognitive power.
6. Steinberg & Leaman (1990a)	5,033 commissioned officers from second lieutenant to colonel	Survey	Colonels were more likely than lower-ranking officers to be involved in short-term and long-term goal setting, planning, and policy making; developing contacts with organizations outside the Army; and working with civilian managers.

(1987), and Steinberg and Leaman (1990a, 1990b). A common theme across these studies was that they included an examination of leadership requirements at levels below the systems domain (i.e., Strata II-V). That is, these studies investigated leaders either across all seven strata (Stamp, 1986), leaders primarily in the organizational domain (Rigby & Harris, 1987), or leaders ranging from the production to the organizational domains (i.e., lieutenant to colonel). Accordingly, they provide data on trends in performance requirements across lower levels that can be evaluated with respect to the predictions of Stratified Systems Theory.

Long-term planning. Stratified Systems Theory proposes that planning time frames become longer at higher organizational levels, with Strata VII executives operating within 20+ year time frames. Lucas and Markessini (1993) reported that, indeed, the percentage of general officers who stated that long-term planning was important in their work rose from 25% for one-star officers to 40% for two-star officers, 63.6% for three-star officers, and 87.5% for four-star officers. Content analyses of these interviews were used to uncover the specific range in work time frame for each level. Revising the protocols used by Harris and Lucas (1991), Lucas and Markessini scored each general officer for his (a) task planning time span; and (b) the time horizon that he could envision future events (called “performance capability”). For the first measure, means were approximately in the 5- to 7-year time frame for all four ranks. For the second measure, mean responses were longer, with four-star general officers averaging a 19-year time horizon. However, the maximum horizons for the one-, two-, and three-star officers were all in the range of approximately 9-11.5 years. This is within the lower and upper time frames proposed Stratified Systems Theory for two-star and three-star officers, respectively, but it is longer than the span proposed for one-star officers.

Markessini et al. (1994) reported an even more fine-grained analysis of work time span for ES and SES civilian executives. They coded interview content using the following definitions of three different time spans (p. A-1):

Time span of work: a time period to formulate, prepare for, execute, and complete a specific job task, or set of tasks, that is self-determined or actively undertaken rather than institutionally defined.

Planning time frame: a time period for a mental construction that features a vision of the future, goals related to that vision, and a means to attain that future aspect.

Envisioning horizon: a time period for a particular vision of the future not necessarily tied to any articulated sense of a planning process.

Table 3-3 displays the scores for these measures for the civilian executives and, where possible, for the general officers. The mean scores reported by the civilian executives were 4.5 years, 8.5 years, and 16.8 years, respectively, for work time span, planning time span, and envisioning horizon. Markessini et al. (1994) also indicated modal scores of work time spans derived from the general officer interviews (shown in Table 3-3; mean scores on this index were not provided; also, no envisioning horizon scores were reported for general officers). One-, two-, and three-star officers reported a modal work time frame in the range of 0-4 years, while the four-star officers reported a modal work time frame in the range of 5-9 years. The civilian executive modal responses were in the 0-4 time frame.

The conceptual distinctions among these measures are important ones. Responses on the *work time span measure* do not support the cross-level differences proposed by Stratified Systems Theory. Further, the data suggest no real differences in *average task planning time spans* across the general officers. However, the *maximum planning times*, or performance capability scores, do suggest a difference between top military executives and those at lower levels. Also, the performance capability and envisioning scores were within the time frames predicted by Stratified Systems Theory. Two significant caveats are in order, though, regarding the interpretation of these data. First, time span responses were not specifically primed by the structured interview questions. Therefore, not all executives

Table 3-3. Reported Mean Time Span Scores (In Years) for Civilian Military Executives and General Officers

Sample	Time Span Measure			
	Typical Task	Typical Planning	Maximum Planning (Performance Capability)	Envisioning Horizon
ES/SES	4.50	8.52	13.6	16.8
4 Star G.O.	(5-9) ^a	6.95	19.0	N/A ^b
3 Star G.O.	(0-4) ^a	6.63	11.5	N/A ^b
2 Star G.O.	(0-4) ^a	4.71	8.6	N/A ^b
1 Star G.O.	(0-4) ^a	6.72	11.2	N/A ^b

Note:^a Only modal task time frames were provided for General Officers.

Note:^b Envisioning horizon scores were not provided for General Officers.

Note: Adapted from Markessini, Lucas, Chandler, & Jacobs (1994, pp. 10-11, 13) and Lucas & Markessini (1993, pp. 33, 35).

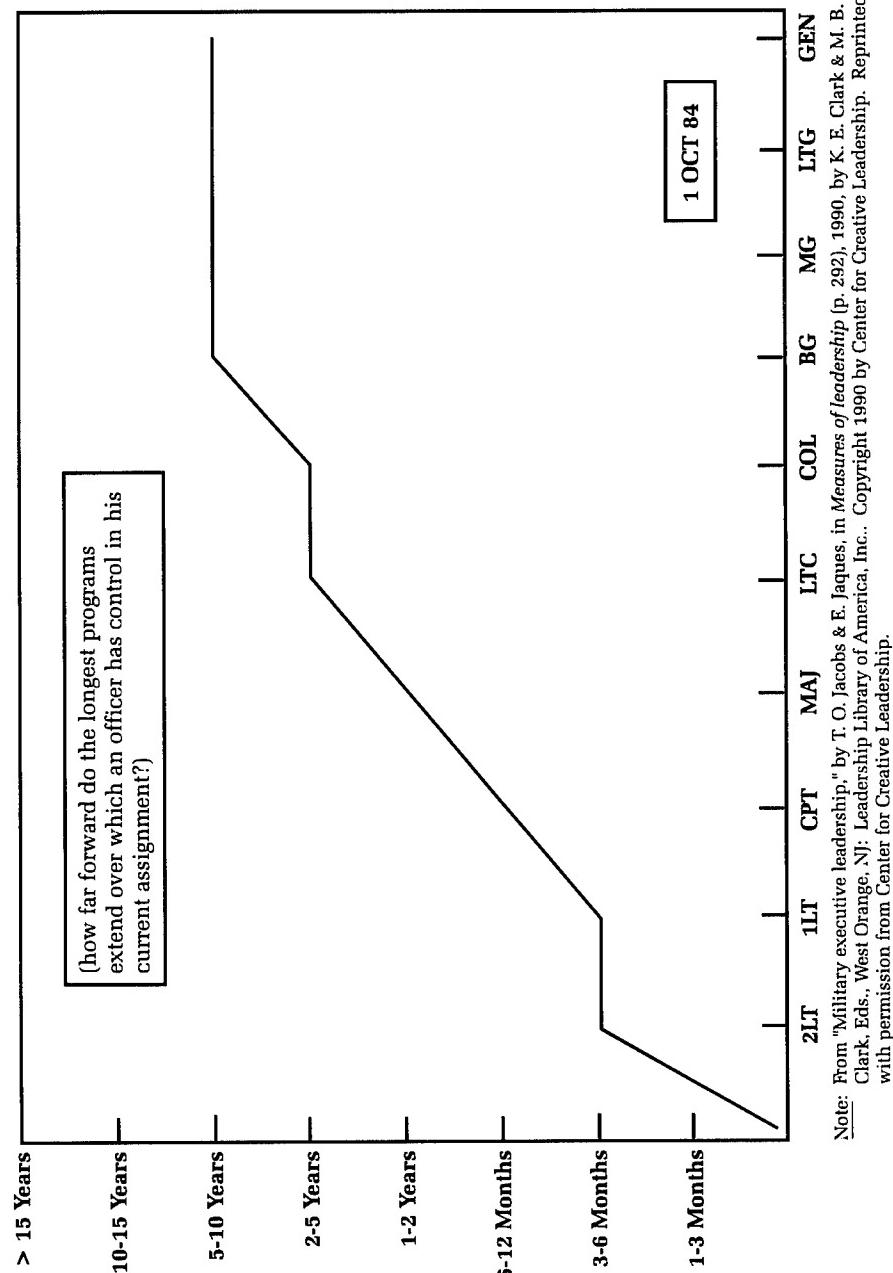
reported a planning time span. The percent responding was 50, 70, 71, 63, and 70 for each of the general officer groups ranks (from one-star to four-star) and the civilian executives, respectively. Also, only 19% of the civilian executives reported a envisioning horizon time frame. Thus, some of the reported means may not be representative of each sample, particularly at the one-star level and for the civilian executives. Second, the number of four-star general officers in the sample was very low ($n = 8$). While this sample represented 61.5% of the position incumbents at the time of the interviews, it was too low for any but descriptive analyses.

The conceptual distinctions in executive time frames made by Markessini et al. (1994) can be a useful refinement of Stratified Systems Theory. Indeed, they may represent an effective response to critics of this theory that argue executive work within the long time spans proposed is atypical and often counterproductive (e.g., Mintzberg, 1973, 1975, 1990, 1994; Streufert & Swezey, 1986). The data from these three studies suggest relatively short work time frames and hence is consistent with the arguments of other executive leadership theorists. These data do suggest that executives may have the capability to plan and envision over longer periods. Nonetheless, there is no evidence provided by these studies that compares variance in any of these time frame measures to variance in individual and performance outcomes. This leaves unresolved the questions of (a) whether any measure of time span is associated with organizational effectiveness, and more specifically (b) if the three measures of executive leadership time spans exhibit differential predictive validity with respect to performance.

These studies describe leadership time span requirements at the top of the organizational domain and in the systems domain of the stratification suggested by Stratified Systems Theory. Other military studies examined time span and policymaking requirements for leaders ranging across the production and organizational domains (Rigby & Harris, 1987; Steinberg & Leaman, 1990a). Jacobs and Jaques (1990) reported survey data from the Professional Development of Officers Study that is summarized in Figure 3-2. These data document longest assignment time spans for each military rank from 2nd lieutenant to four-star general (unfortunately, no other reference or information about sample size and data collection was provided). These data show that, as expected, time frames increased steadily until the general officer ranks, where reported time frames were in the 5- to 10-year range. The data from general officers is consistent with the work and typical planning time span scores reported from the interview studies. But the time spans for top executives (three- and four-star officers) are lower than those predicted by Stratified Systems Theory.

Rigby and Harris (1987) examined the time frames for operations in Army Program Management Offices (PMOs; Stratum IV leaders) and in Major Subordinate Commands (MSC; Stratum V leaders). The PMOs were found to operate within the 2- to 5-year time span predicted by Stratified Systems Theory, while the MSCs operated within the predicted 5- to 7-year time frame. Steinberg and Leaman (1990a) administered an extensive task analysis instrument to 5,033 commissioned officers, ranging in rank from 2nd lieutenant to colonel. They found that colonels (i.e., Strata IV leaders) were more likely than lower level counterparts to be involved in setting short-term and long-term unit/element goals, and in making policy decisions. In comparison with the data from general officers, the descriptive data from these studies suggest that planning or work time horizons are somewhat shorter in the organization domain than in the systems domain, but longer than those in the production domain.

Boundary-spanning activities. According to conceptual complexity theories, the information processing demands of executives result not only from their need to operate within longer time frames, but also from the requirement that they interact with multiple external constituencies and integrate the information contributed by different groups into a coherent frame of reference for the organization. Harris and Lucas (1991) reported that 75% of the four-star officers and 54.5% of the three-star officers described joint/unified command as part of their performance requirements. Such commands require interactions with subordinates from different components of the military as opposed to within-Army command. Also, the four-star officers indicated that they reported to at least one external, nonmilitary constituency (e.g., U.S. or non-U.S. government representatives), while no three-star officer indicated such a requirement. Finally, 87.5% of the four-star and 60.6% of the three-star officers reported that their work required a significant international focus. These descriptions support the premise of significant boundary-spanning requirements at the military executive level.



Note: From "Military executive leadership," by T. O. Jacobs & E. Jaques, in *Measures of leadership* (p. 292), 1990, by K. E. Clark & M. B. Clark, Eds., West Orange, NJ: Leadership Library of America, Inc.. Copyright 1990 by Center for Creative Leadership. Reprinted with permission from Center for Creative Leadership.

Figure 3-2. Median program/project time span.

The content coding categories for the Lucas and Markessini's (1993) study of one-star and two-star general officers were not identical to those of Harris and Lucas, thus constraining direct comparisons of general officers at four ranks. Nonetheless, one- and two-star officers reported less joint/unified command assignments than their strategic level counterparts and no reporting channels outside of the military.

Only 33% of the civilian executives examined by Markessini et al. (1994) reported that an international focus was important in their work, a figure that is lower than those reported by their military counterparts. However, approximately 78% of these executives stated that working across service boundaries was an important performance requirement.

As proposed by Stratified Systems Theory, studies of officers in the production and organizational domains suggest little or no external boundary-spanning activities by officers below the rank of general office or colonel. For example, Rigby and Harris (1987) reported that while MSC Commanders (i.e., Stratum V leaders) were primarily responsible for the exchanges between PMOs and the external environments, the operational environment for the PMOs (i.e., Stratum IV leaders) was primarily internally focused. Further, Steinberg and Leaman (1990a) found that the degree to which (a) developing contacts with organizations outside of the Army and (b) interacting with civilian managers was part of an officer's position requirements decreased substantially from the grade of colonel to lieutenant.

Network development/consensus building. Most of the top-level military and civilian executives examined respectively by Harris and Lucas (1991) and Markessini et al. (1994) highlighted the importance of social network development and consensus building as necessary parts of their work (percentages reporting this requirement ranged from 87.5% to 92.6%). Lucas and Markessini (1993) treated these variables separately in their study of one- and two-star officers and reported similar high scores for network development (one-star officers = 85%; two-star officers = 95%). For the importance of consensus development, the percentages were somewhat smaller than for

top military executives (65% for one-star officers and 80% for two-star officers).

Analyses of leadership requirements at Army ranks below general officer do not mention network development and consensus-building activities; instead, the emphasis is, as expected, on directive leadership. For example, Steinberg and Leaman (1990a) aggregated tasks on their leader requirements survey into the global duties of (a) train, teach, and develop leaders; (b) motivate personnel; (c) resource management; and (d) provide direction. These kinds of leader requirements are consistent with those proposed for leaders in the production domain. Further, they fit with a more directive and less collegial leadership orientation that is expected of more senior leaders.

Frame of reference. According to Jacobs and Jaques (1987, 1990, 1991), a critical mechanism mediating top leadership influence on organizational performance is the complexity of the cognitive maps executives form of the short- and long-term, direct and indirect causal processes operating within and outside of the organization. The military and civilian executives examined in Harris and Lucas (1991), Lucas and Markessini (1993), and Markessini et al. (1994) all report that such complex mental models are indeed required for executive performance, with requisite maps of greater complexity being reported at higher executive ranks. For example, the general officers indicated a greater need to understand the external environment and how it affected organizational operations and requirements. Indeed, the boundary-spanning activities described earlier required greater knowledge of multinational politics, international conditions, and differing cultures. Further, understanding of dynamics in the other Armed Services within the context of joint and unified command was also more critical at these levels. Executive strategic thinking and decisionmaking envelops the entire army within the broader defense, national, and international boundaries. The responses from these interviews suggest that military executive cognitive maps do include such knowledge.

Stratified Systems Theory places more emphasis on the external systemic orientation of top executives than other

executive leadership theories (cf., Katz & Kahn, 1978). In line with this argument, only 42.4% and 37.5% of the three- and four-star officers, respectively, indicated that an understanding of the internal Army system was important for their work. These percentages increased to over 80% for the one- and two-star officers. The civilian executives (78%) also attributed high importance to understanding "the interdependencies of the systems that comprise the Army" (Markessini et al., 1994, p. 14). The perspective of military executive leaders appears to move from predominantly internal to predominantly external as one moves from the top of the organizational domain into the systems domain.

These findings are cited by Jacobs and Jaques (1990, 1991) and by the authors of each respective research report as evidence that more complex mental maps or frames of references are required by executives. However, these data speak to the *content* of these maps, not to their *structure*. The complexity of executive frames of reference are grounded not only in their content, but also in the intricacies of the linkages and associations among conceptual nodes represented in such cognitive systems. A cognitive map with a significant amount of knowledge content may be highly differentiated, but display little or no integration. Yet, both Stratified Systems Theory and Interactive Complexity Theory argue that it is the integration of this knowledge into a meaningful pattern that is necessary for executive work. Unfortunately, the methods used and the data collected thus far by various researchers do not provide sufficient grounds for making inferences about the explicit structure of requisite leader knowledge.

Evaluation. An important characteristic of this set of studies on military executive performance requirements is that most of them were developed from a systematic theoretical framework and therefore designed to assess specific propositions about such requirements. Much of the prior empirical research on executive work has been atheoretical with the goal of merely describing the nature of such work; the result is a body of data that can be explained from multiple theoretical perspectives and, therefore, is insufficient for assessing the differences among these

perspectives. Most of the studies described here explicitly address the variables in the form of testable predictions derived from Stratified Systems Theory.

The development of testable predictions is most evident with respect to executive planning. Most theoretical statements argue for three levels or domains of organizational leadership requirements (e.g., Katz & Kahn, 1978). Stratified Systems Theory incorporates seven strata within three superordinate levels. Differences among the levels are operationalized most directly in requisite planning and work time spans. Also, systems leaders were defined as being more externally focused than organizational leaders. The cross-section of data presented in the various military studies suggests limited support for seven discrete levels of organizational leadership, as defined by Stratified Systems Theory. As shown in Table 3-3, work time spans are generally comparable across brigadier, major, and lieutenant general officers, but somewhat higher for four-star officers. Also, Figure 3-2 indicates little or no difference across these levels, although greater differences were observed across production and organization domain leaders. The data suggest that systems-level leaders operate from a somewhat longer time frame (e.g., 6-9 years for three- and four-star generals, civilian executives) than leaders at the organizational level (e.g., 2-6 years for one-star and two-star generals; MSC and PMO leaders). Furthermore, systems leaders described interactions outside the boundaries of the Army as a greater part of their work than organizational leaders. Consequently, knowledge of systems outside of the Army was cited as more important by systems leaders than organizational leaders.

These differences suggest significant qualitative shifts in performance requirements between organizational and systems domain leaders. While there is some suggestion of finer gradations *within* these domains, the data as a whole do not consistently demonstrate the degree of differences in time span of work proposed by Stratified Systems Theory. Further, the boundary between systems and organizational leadership is not precisely delineated, at least with respect to work and planning time frame. While, the predictions of Stratified Systems Theory

for Strata IV and V leaders appear to be supported, systems leaders demonstrate some compression relative to the time frames predicted by the theory. Differences begin to appear only when work time span is defined in terms of performance capability or envisioning horizons.

The different operationalizations of work time span raises another concern that was described earlier. Creating multiple definitions of work-related time span prompts the question of *which one is the most pertinent or key executive performance requirement*. This is important because critics of Stratified Systems Theory argue that long operational time frames are dysfunctional particularly within dynamic and fluid environments (Streufert & Swezey, 1986). Long-term planning can produce inflexible products that are not responsive to changing conditions. Flexible plans are likely to be those that reflect a relatively short (3-7 years) time span. The distinctions in work time spans made by Lucas and Markessini (1993) and particularly by Markessini et al. (1994) suggest that executive operational time spans are within this range. They also describe executives as capable of a longer time frame. However, there is little evidence that executive thinking incorporating such longer time spans are necessary for effective executive performance.

In sum, these military studies suggest some initial support for increased information processing demands at higher organizational levels. In support of postulates 1-4, they indicate that higher level leaders are required to (a) operate within a relatively longer time frame, (b) be more involved in organizational policy making, (c) interact more frequently with external constituencies, (d) engage in more network development and consensus building, and (e) develop more complex cognitive maps than lower level leaders. However, these observations and conclusions need to be tempered by several methodological concerns. First, the bulk of the research reported in Table 3-2 utilized structured interviews to gather data. While such a strategy may at times be the only feasible one to study executive leadership, it is open to a number of biases and validity threats that prevent definitive conclusions. This problem is compounded by the relatively small sample sizes in these studies

(particularly at the top executive levels) that precluded inferential statistics. Accordingly, such multivariate issues as (a) which definition of time span is most characteristic of executive work, or contributes most to organizational effectiveness; and (b) which executive performance requirement is most crucial for organizational performance could not be investigated. That is, the question remains, which role requirement is the most important means by which executives add value to their organization? Or, are all specified executive leadership requirements of equal importance? These issues are critical for appropriate and comprehensive tests of both Stratified Systems Theory and Integrative Complexity Theory.

The resolution of these questions requires not only a multivariate approach, but also organizational effectiveness criteria. Recall Day and Lord's (1988) recommendation that a systematic theory of executive leadership describe "what top-level leaders do that impacts on performance" (p. 458). Stratified Systems Theory offers at least four mechanisms of executive impact—long-term planning, boundary-spanning, network and consensus building, and the development of an integrated cognitive map. However, none of the aforementioned studies provide empirical support that any of these executive leadership mechanisms actually "add value" to the organization. That is, none of these mechanisms is tied to a organizational effectiveness criterion. As suggested in Figure 3-1, establishing this link is an important part of validating a model of executive leadership. Given the studies described in this section and considering the postulates offered earlier, no evidence has yet been provided that either confirms or disconfirms postulates 5-8.

The basic premise of conceptual complexity theories is that information-processing demands increase at higher organizational levels. This requirement leads to the specification of cognitive complexity as an important executive capacity. However, the approach reflected in the interview studies, particularly in the interview scripts and content coding categories, was to describe the presumed *determinants* of more complex information processing, not the precise nature of executive information processing. The interview protocols could

have been coded more specifically, for example, on how often executives mentioned the need to handle greater quantities of information that are derived from a diverse set of sources, that are often incomplete, and that require substantial reflection and interpretation. Such data would more directly assess hierarchical differences in organizational information-processing demands.

Some executive performance requirements inherently reflect more complex information-processing demands (e.g., long-range planning, building complex frames of reference). However, executive requirements such as boundary-spanning and network/consensus building are hypothesized by other models of executive leadership to reflect greater *social* complexity (e.g., see descriptions of behavioral complexity models in Chapter 4). Thus, they propose a different (or at least an additional) mediating mechanism that suggests requisite executive capabilities other than cognitive complexity. Of course, it is likely that top-level organizational performance requirements create both information-processing demands and social complexity for executive leaders. Nonetheless, these conceptual linkages need to be examined more precisely than in the studies just described.

Nonmilitary Research

Table 3-4 summarizes studies using nonmilitary samples that provide data bearing on the postulates regarding executive performance requirements. Unlike the military studies just described, few of the studies reported in this table proceeded from any *a priori* conceptual framework, much less the one provided by conceptual complexity theories of executive leadership. Hence, these data can be interpreted as supporting multiple conceptual models (indeed, some of the studies cited here provide data also relevant for behavioral complexity models—see Chapter 5). Nonetheless, these studies provide some evidence for the specific questions raised here and will be examined from the perspective of conceptual complexity models.

Table 3-4. Summary of Empirical Studies of Executive Performance Requirements in Nonmilitary Domains

Study	Study Participants	Type of Study	Findings
1. Baehr (1992)	1,358 managers at multiple organizational levels in companies from four industries (manufacturing, sales, professional, and technical)	Survey/ Correlational	Executives in all industries but professional ones were more involved in long-range planning and objective setting than lower level or middle managers. The major functions of executive work were planning and employee development, followed by community relations.
2. Barr, Stimpert, & Huff (1992)	Top managers in two regional railroad companies over a 25-year period. One company was successful, one declared bankruptcy shortly after the study	Case Study	The causal maps of top management (derived from annual reports) of the successful company were more responsive to environmental changes than in the unsuccessful company.
3. Calori, Johnson, & Sarnin (1994)	24 CEOs and 2 general managing directors from companies in four industries—brewing, car manufacturing, retail banking, and book publishing	Interview	The complexity of CEO cognitive maps of the industry was related to the geographic and multinational scope of the firm, but not to the diversity of its business portfolio.
4. Dollinger (1984)	82 owner/operators of retail and manufacturing companies (both food and apparel industries)	Survey/ Correlational	Intensity (proportion of executive's time devoted to boundary-spanning) of executive boundary-spanning activities was significantly associated with two indices of organizational performance. Extensive boundary-spanning (number of external contacts made) was not associated with any measures of performance.
5. Fahey & Narayanan (1989)	Top management in a single corporation over a 20-year period	Case Study	Demonstrated the nature of executive cause maps in the context of environmental change. Managerial mental maps (derived from annual reports) evolved over time and were influenced by environmental changes. However, at different times, causal maps either failed to reflect critical environmental elements or included too many influences.

Table 3-4. Summary of Empirical Studies of Executive Performance Requirements in Nonmilitary Domains

Study	Study Participants	Type of Study	Findings
6. Fleischman & Friedman (1990)	117 managers at three levels in nine R&D companies	Survey/Correlational	upper level managers allocated substantially more time on strategic planning than middle or first-line managers. They also spent more time on personnel supervision, but comparable times on project management activities.
7. Goodman (1967)	169 managers across multiple organizational levels of a single company	Survey/Correlational	Measures of work time span displayed small to moderate correlations (.10 to .47) with hierarchical level.
8. Haas, Porat, & Vaughn (1969)	355 managers at all organizational levels of a large metropolitan area bank	Survey/Descriptive	Differences across three organizational levels in reported time spent planning were small. Also, top managers spent more of their time negotiating, coordinating, and supervising than planning.
9. Hambrick (1981b)	195 top, second-level, and third-level executives in colleges, hospitals, or insurance firms	Survey/Correlational	Different measures of environmental scanning (i.e., output, throughput, administrative, regulatory, and total scanning) were correlated with hierarchical level in colleges and insurance firms but not in hospitals. The amount of scanning was not consistently related to functional area.
10. Hemphill (1959)	93 managers at three hierarchical levels in five companies	Survey/Descriptive	A comparison of managerial position descriptions across hierarchical levels indicated that as one moved from lower to middle management, position responsibilities shifted away from direct personnel supervision to more planning and broad organizational control. At top managerial levels, these responsibilities shifted to concerns with the reputation of the company in its environment and preservation of the company assets.

Table 3-4. Summary of Empirical Studies of Executive Performance Requirements in Nonmilitary Domains

Study	Study Participants	Type of Study	Findings
11. Isenberg (1984)	12 top senior company managers	Interview/ Observation	Top executives devote a significant proportion of their time to strategy implementation rather than formulation. The thinking of senior managers is characterized as a mix of intuition and disciplined analysis. They also work on multiple interrelated problems simultaneously, rather than one at a time.
12. Judge & Spitzfaden (1995)	CEO and senior R&D manager from 8 biotechnology firms	Interview/ Survey/ Descriptive	Average time horizons across firms ranged from 5.0 to 8.5 years. Diversity of time horizons in strategic portfolio, but not average length of horizon, was associated with organizational financial performance. The four firms exhibiting high performance had more diversity than the four firms reporting relatively lower performance.
13. Kaplan (1986)	25 top executives and general managers	Interview	Author concluded from interviews that top managers are required to operate strategically (setting long-term direction, keeping eye on big picture), operate tactically (dealing constantly with problem solving), think multidimensionally, develop and use large social networks, and manage organizations of large scope.
14. Kotter (1982a, 1982b)	15 corporate general managers	Interview/ Observation	Two major aspects of general manager's job are agenda setting and network building. Time frames of typical GM agendas range from short-term (0-12 months) to long-term (5-20 years), although long-term agendas represent "vague notions" about financial, business, and organizational issues. GM networks can incorporate hundreds or thousands of individuals from within and outside of the company. Networks are developed for the purpose of updating and implementing managerial agendas.
15. Kraut, Pedigo, McKenna, & Dunnette (1989)	1,412 managers at multiple organizational levels of a large U.S. business enterprise (658 first-line supervisors, 553 middle managers, 201 executives)	Survey/ Descriptive	Executives attached greater importance to monitoring the business environment as part of their job than middle managers or supervisor. Supervisors rated supervising individuals as more important than middle managers or executives. Planning was rated as similarly important by middle and executive managers.

Table 3-4. Summary of Empirical Studies of Executive Performance Requirements in Nonmilitary Domains

Study	Study Participants	Type of Study	Findings
16. Levinson & Rosenthal (1984)	6 corporate CEOs	Interview	Authors concluded from their interviews that the performance requirements of corporate CEOs involve long-range envisioning as well as an action orientation. Also, they must interact with multiple external constituencies.
17. Luthans, Rosenkrantz, & Hennessee (1985)	52 managers from multiple organizational levels in a state department of revenue, a campus police department, and a manufacturing company	Observation	Top-level managers displayed more planning and coordinating behaviors than lower- or mid-level managers. Also, the degree to which manager interacted with constituencies outside the organization was significantly associated with individual promotion rate.
18. Mahoney, Jendee, & Carroll (1965)	452 managers at multiple organizational levels in 13 companies (manufacturing, finance, insurance, agricultural products, public utilities, and wholesale trade)	Survey/ Descriptive	Planning activities increased in frequency from lower to upper levels of management. The proportion of top manager activities was highest for planning, followed by supervising.
19. Miller & Cardinal (1994)	N/A	Meta-analysis of 26 studies of strategic planning and firm performance	Strategic planning was positively associated with two measures of organizational performance. The relationship between planning and profitability was stronger under conditions of environmental turbulence.
20. Tornow & Pinto (1976)	489 managers at three hierarchical levels in six diverse companies within a parent corporation	Survey/ Descriptive	Upper management executives exhibited substantially higher scores on long-range thinking and planning than middle or beginning managers. They also indicated less responsibility for direct supervision than beginning managers and less responsibility for coordination or organizational units than middle managers.

As a group, the nonmilitary studies described in Table 3-4 employed a greater variety of research methodologies than the military studies of executive performance requirements. These include case studies/interviews, participant observation, descriptive surveys, work-oriented job analyses, and correlational survey studies. On the other hand, because most of the studies were not designed from a particular theoretical model, they tend not to address specific distinctions made by conceptual complexity theories of executive leadership. For example, while Stratified Systems Theories postulates precise time spans for seven organizational levels, few if any of the following studies sought such information (see Goodman, 1967, as an exception); instead executives were often queried merely about their degree of long-term planning rather than its time span or horizon. Such data speak to the general thrust of Stratified Systems Theory, but not to its specific hypotheses. Similarly, of critical importance to both of the conceptual complexity theories is the premise that executives must work with more complex information; yet few of the nonmilitary studies denoted *systematically* the nature of executive information requirements. Again, the data from these studies on this point support the general thrust, but not the particulars of these theories.

Nonetheless, the variety of methodological approaches and diversity of samples does provide an opportunity to investigate the degree to which findings from nonmilitary executives suggest a general picture of executive work requirements similar to the one painted by the military executives.

Long-term planning. The results of different studies described in Table 3-4 regarding leader planning suggest that:

- higher level organizational leaders engage in more planning than lower level leaders,
- executive planning generally reflects a longer term perspective, although medium- and short-term perspectives are also prominent, and
- executive planning is associated with organization effectiveness.

Key Issues

Time Frame	Financial	Business (Products/Market)	Organizational (People)
Long-run (5-20 years)	Usually contains only a vague notion of revenues or ROI desired in 10 or 20 years	Usually only a vague notion of what kind of business (products and markets) the GM wants to develop.	Usually vague. Sometimes includes notion about the "type" of company the GM wants and the caliber of management that will be needed.
	Typically includes a fairly specific set of goals for sales and income and ROI for the next 5 years.	Typically includes some goals and plans for growing the business, such as: <ul style="list-style-type: none"> • see that three new products are introduced before 1981 • explore acquisition possibilities in the area of . . . 	Usually includes a short list of items, such as: <ul style="list-style-type: none"> • by 1982, will need a major reorganization • before 1981, I need a replacement for Corey. . .
Medium-run (1-5 years)			
Short-run (1-12 months)		Typically includes a very detailed list of financial objectives for the quarter and the year in all financial areas: sales, expenses, income, ROI, etc.	Typically includes a set of general objectives and plans aimed at such things as: <ul style="list-style-type: none"> • the market share for various products • the inventory levels of various lines

Note: Adapted from *The general managers*, by J. P. Kotter (1982a), p. 62. Copyright 1982 by The Free Press. Adapted with the permission of The Free Press, a division of Simon & Schuster.

Figure 3-3. A typical executive planning agenda.

These results are generally consistent across different methodologies. Kotter (1982a, 1982b) interviewed 15 corporate general managers whose responsibilities tended to range from business unit management (i.e., Stratum V) to multidivisional or corporate CEO (i.e., Strata VII). The latter were described as having more demanding “long-run responsibilities” than the former. Further, Kotter abstracted a typical strategic agenda constructed by the general managers within their first year in the position. This agenda is shown in Figure 3-3. As suggested by Stratified Systems Theory, time spans for these managers can range up to 20 years. However, in line with Interactive Complexity Theory, these plans are very vague and suggest a significant degree of flexibility. Further, a significant part of executive planning is reflected in short-run and medium-run time spans, where plans are more detailed and presumably more fixed. Note, however, these data are purely descriptive and reflect an abstraction developed by the researcher.

Similar abstractions from executive interviews are offered by Kaplan (1986) and Levinson and Rosenthal (1984). However, Isenberg noted from his case studies that “even very senior managers devote most of their attention to the tactics of implementation rather than the formulation of strategy” (p. 84). This observation is congruent with those of Mintzberg (1973, 1975) and portrays the executive as action-oriented rather than reflective. It is also consistent with Peters and Waterman’s (1982) observations of excellent companies. This reflection-versus-action debate resonates through a significant part of the executive leadership literature and is the basis for some of the behavioral complexity models described in Chapter 4. This is a point that I will return to later in this report.

These case studies and interviews provide an impressionistic portrayal of executive planning requirements. Several other studies provide more systematic and quantitative data. Luthans, Rosenkrantz, and Hennessey (1985) observed 52 managers at multiple levels of three organizations. They reported that top-level managers exhibited more planning and coordinating behaviors than middle or lower level managers; however, the level of top management and the time frame of planning was not

specified. Mahoney, Jerdee, and Carroll (1965) surveyed 452 managers ranging from first-line supervisor to company president and found that the percentage of managers who were characterized as "planners" was highest among top-level managers. However, Haas, Porat, and Vaughn (1969) reported smaller differences in planning across organizational levels, while Kraut, Pedigo, McKenna, and Dunnette (1989) found that the number of managers who said planning and resource allocation was of "utmost" or "considerable" importance actually declined from middle to executive levels, although both groups cited these activities as important in their job. It should be noted that Stratified Systems Theory would argue that planning is more a province of executive managers while resource allocation is more likely to be the concern of managers below the executive level (executive managers are concerned with *resource acquisition*). Thus, two different managerial activities appear to be confounded in this finding.

These studies provided mixed results regarding the posulate that senior leaders engage in more planning than their lower level counterparts. Moreover, none of them clearly specified *long-term* as opposed to short- or medium-term planning in their surveys. Three studies that used survey methodologies to complete work content analyses of managerial jobs at different organizational levels examined planning from a specifically stated long-range perspective. For example, Tornow and Pinto (1976) developed the Management Position Description Questionnaire that included as one of its factors *product, marketing, and financial strategy planning*. This factor was defined as indicating "long-thinking and planning" (p. 414). Tornow and Pinto reported that upper-management executives exhibited standardized scores on this factor that were more than one standard deviation above the mean, while standardized scores for middle and lower management were more than one half standard deviation below the mean. No other job factor in their study exhibited this magnitude of difference between executives and both groups of lower level managers.

Hemphill (1959) administered the Executive Position Description Questionnaire to 93 managers across three executive

levels from five organizations. One of the dimensions from this survey was "long-range planning," defined as:

systematic long range thinking and planning. The concerns of the incumbent are broad and are oriented toward the future of the company. These concerns extend to industrial relations, development of management, long-range objectives of the organization, solvency of the company, pilot projects, the business activities the company should engage in, existing or proposed legislation that might affect the company, and the evaluation of new ideas (p. 59).

Note that Hemphill's description captures not only the temporal aspects of planning, but also the scope and expanse of topics covered in executive planning. As such it incorporates many of the elements of systems-level leadership identified by Stratified Systems Theory. Hemphill does not report mean differences on this dimension among executive managers. However, he noted from his data that upper level executives scored higher on this dimension than lower level executives.

Baehr (1992) developed and administered a job-oriented job analysis instrument similar to the one used by Tornow and Pinto to 1,358 managers at different organizational levels in manufacturing, sales, professional, and technical organizations. One of the job functions included in the survey was *setting organization objectives*, which involved formulating the overall organizational mission and establishing short- and long-term objectives. Baehr found that this function was unique to executives in all types of industries except professional organizations.

Taken together, these studies demonstrate support for postulate 1—that planning, particularly long-term planning, is more likely to be a part of leadership requirements at the top of the organization than at any other level. Further, the general pattern reported from these nonmilitary studies is congruent with the pattern reported from military studies. These studies, however, do not examine the more fine-grained distinctions in planning time frames proposed by Stratified Systems Theory. A

study by Goodman (1967), using a nonmilitary sample, was designed specifically to test Jaques's (1956, 1964) distinctions. He surveyed 169 managers from six strata in a single company and gathered four measures of work time spans (pp. 160-162):

- *Individual time extension*: the length of future time which is conceptualized by the individual;
- *Time value orientation*: the value a person gives to living for the future relative to the present;
- *Time span of multiple tasks*: how far in time does the job permit incumbent to plan ahead?
- *Level of abstraction*: what percent of time on the job is spent on planning activities?

Goodman reported that a manager's time value orientation was not correlated with managerial level. The range of correlations for the remaining measures was .20-.47. While these were statistically significant, Goodman did not consider them of sufficient magnitude to support the level of distinction proposed by Jaques. These data suggest broad differences in time span of work across organizational levels, but not necessarily the number of differences suggested by Stratified Systems Theory.

An extension of the time span notion was provided by Judge and Spitzfaden (1995) who examined both the average time span of executive work as well as the diversity or *dispersion* of time horizons across different strategic projects. That is, some projects had relatively short time spans while others carried longer horizons. While Stratified Systems Theory discusses only the length of executive time horizons, Judge and Spitzfaden argued that "firms operating in complex and dynamic environments may need a *diverse* set of time horizons at the strategic level to cope with environmental uncertainty" (p. 180). They examined these measures in eight companies by interviewing company CEOs and senior R&D managers. They also obtained measures of organization performance (stock returns and cash flow on investments). They found that time spans across the eight companies ranged from 5 to 8.5 years and that the companies varied in the dispersion of their time frames.

When they split the companies into two sets of high versus low time frame dispersion groups, the performances of the four companies with greater dispersion in their strategic portfolio were higher than the performances of the companies with less dispersion. No association was observed between average length of time span and company performance.

Judge and Spitzfaden offered some evidence for the importance of diversity, rather than length, in the time spans of an executive's strategic projects. However, the size of their sample allowed only a descriptive analysis. The question remains, does planning, and particularly long-term planning, produce better organizational performance? Prior studies and empirical reviews of this relationship have produced mixed and inconsistent results (Boyd, 1991; Mintzberg, 1990; Pearce, Robbins, & Robinson, 1987; Starbuck, 1983; Thune & House, 1970). A recent meta-analysis of 26 planning and performance studies by Miller and Cardinal (1994) sought to address these inconsistencies by statistically controlling for such moderating influences as firm size, capital intensity, degree of environmental turbulence, and five methodological variables, including whether planning was measured only as formalized planning or incorporated multiple forms of strategic planning. Performance indices were categorized into growth outcomes (sales, earnings, and deposit growth) and profitability outcomes (returns on assets, equity, sales, and total invested capital). Miller and Cardinal found that after controlling for several methodological contingencies, planning was significantly associated with both growth and profitability (expected correlations, controlling for relevant contingencies, were .50 and .43, respectively). Even more interesting was their finding that the correlation between planning and profitability was significantly moderated by environmental turbulence—this relationship was stronger under conditions of high turbulence. This finding is important because turbulent external environments mean higher and more complex information processing demands. Miller and Cardinal's data support the proposition by conceptual complexity theories that, in the face of such demands, the application of conceptual mapping in the form of planning appears to increase organizational effectiveness.

Miller and Cardinal's meta-analytic findings suggest support for postulate 5, that executive planning activities appear to add value to the organization. While Miller and Cardinal did not clearly specify the temporal focus of organizational planning, the assumption is that it reflected a medium- or long-term perspective. Also, another assumption in these studies is that top executives were the instrumental planners in the sampled organizations. While these are reasonable assumptions, their disconfirmation would diminish the support demonstrated for postulate 5.

Boundary-spanning activities. Nonmilitary studies generally confirm the proposed boundary-spanning performance requirements of executive leaders. For example, Kraut et al. (1989) asked managers at multiple organizational levels to rate the importance of several tasks for the performance of their role requirements. They observed that tasks related to *monitoring the business environment and being aware of sales, business, economic, and social trends* demonstrated a significant shift toward higher importance at the executive levels; indeed, they reported that "for managers below the executive ranks, these tasks rate the lowest in importance" (p. 289). Studies using interview and case study methodologies also confirm the predicted stronger emphasis on the external environment by organizational executives (e.g., Kotter, 1982a, 1982b; Levinson & Rosenthal, 1984). However, mixed evidence is provided by Hambrick (1981b), who examined environmental scanning activities across multiple organization levels in college, hospital, and insurance executives. He reported that different measures of scanning were significantly correlated with hierarchical level in the college and insurance sample, but not the hospital sample.

Studies by Dollinger (1984) and Luthans et al. (1985) associated boundary-spanning activities with indices of personal and organizational effectiveness. Luthans et al. (1985) defined managerial success in terms of individual promotion rate and found that the degree to which managers were observed interacting with outside constituencies was linked to rapid promotion of managers. While this finding is suggestive, it raises questions of reverse causality—rapid promotion may have lead

to an increased need for boundary-spanning. Also, Luthans (1988) contrasts successful managers (i.e., defined by high promotion rate) with effective managers (i.e., defined by unit performance and subordinate motivation). Boundary-spanning is not as readily associated with effectiveness as it is with personal success. Finally, the level of management examined by Luthans et al. (1985) was not exclusively top management; thus, the nature of boundary-spanning activities may have differed significantly for different groups/levels of managers.

Dollinger (1984) provided an analysis of boundary-spanning and organizational effectiveness that resolves several of these issues. His sample consisted of 82 company owners/operators; thus, they represented the top level of management in their respective organizations. Performance was assessed through retained earnings, sales, and economic benefits accruing to the owner. Boundary-spanning was measured by the intensiveness (proportion of total work time) and extensiveness (number of contacts made) of interactions with external constituencies. To focus only on *owner* boundary-spanning activities and their effect on performance, Dollinger measured and controlled for total boundary-spanning activities completed by other organizational members. He found that intensive boundary-spanning was associated with sales and accrued gross, even after controlling for several contextual variables (company age, number of employees, type of business, and total organizational boundary-spanning). Extensive boundary-spanning, however, was not associated with organizational performance. This study demonstrates that the percentage of time *top* organizational executives (not the organization as a whole) interact with external constituencies is linked to greater organizational effectiveness.

These studies support postulates 2 and 6 that (a) there is a decided shift toward a more external systemic perspective as a manager moves from lower and middle organizational levels to the executive ranks, and (b) the effective accomplishment of boundary-spanning performance requirements is associated with greater organizational effectiveness. However, recall that top military leaders in the study by Harris and Lucas (1991)

displayed a greater external than internal perspective; that is, they were oriented to greater extent outside of the organization than inside the organization. This orientation is one that is predicted by Stratified Systems Theory. Research with executives in nonmilitary settings suggest a more even balance in perspective. For example, based on his intensive interviews of 15 general managers, Kotter (1982a, 1982b) described a large proportion of their work as internally focused. Also, Baehr's (1992) work-oriented job analysis completed on 1,358 managers yielded the following summary of executive performance functions (p. 47, italics added):

In general, top level executives perform at least three different types of functions: *the major emphasis* is on the steering and operational functions such as Objective Setting and decisionmaking, followed by functions that deal specifically with the development of the work force, such as Developing Employee Potential and Developing Teamwork and, *at a somewhat lower level of importance*, functions that involve the community outside of the work place, such as Community/Organization Relations and Dealing with Outside Contacts.

Other studies using survey and observation methodologies also confirm the significant internal systemic focus of top managers (e.g., Haas et al., 1969; Mahoney et al., 1965; Morse & Wagner, 1978; Tornow & Pinto, 1976). Simply put, such executives, while certainly more externally oriented than their subordinates, focus a significant amount of time, energy, and attention on internal organizational and operational management. This pattern differs from the one suggested by Harris and Lucas (1991) and Lucas and Markessini (1993) from their interviews with top Army executives (i.e., four-star general officers).

Three factors may explain these differences between military and nonmilitary executives. First, different methodologies were used for each set of studies; the military sample was examined using an interview methodology while the nonmilitary studies utilized a variety of methods, including time-on-task analyses, participant observations, and job and task inventories. The latter

approaches are more systematic than the interview approach. Surveys and inventories, for example, include a priori many different aspects of the executive work, while the interview method used in the military studies employed an open-ended format that did not necessarily cue the full range of work functions. This may have resulted in an over-representation of externally oriented functions in the interview data, because such functions may be less routine and, therefore, more interesting to both the interviewee and the interviewer, who are then more likely to discuss them in an unstructured format.

A second factor is differences between nonmilitary and military studies on their specification of executive managers. The military studies used a more precise delineation of executive ranks, essentially separating the top levels (four- and three-star officers) from the next lower levels (one- and two-star officers). In most of the nonmilitary studies executives were typically combined into a single group identified as upper level managers. For example, several of the subjects in Kotter's study would not likely be categorized as Strata VI or VII leaders. Likewise, while Baehr's sample of top-level managers included those with titles such as "chief operating officer," and "executive vice president," others were identified as vice presidents, general managers, and divisional heads, none of which would likely reflect systems-level work. This distinction is important because the external systemic focus was attributed most strongly for Stratum VII leaders, slightly less so for Stratum VI leaders, and much less so for Strata IV and V leaders. Combining these different leaders into a single group, as was typical in the nonmilitary studies, would result in a distorted, more internally focused perspective being ascribed to them.

Another factor explaining the observed difference between these two sets of samples may simply be that military leaders are required to be more externally focused than their nonmilitary counterparts. This, of course, violates a premise of Stratified Systems Theory that it is generalizable across many different types of executive leadership (Jacobs & Jaques, 1987, 1991). Nonetheless, there are significant differences between military and nonmilitary organizations that could have implications for

executive boundary-spanning functions. For example, each military service participates in several joint arrangements (e.g., Joint Chiefs of Staff; Joint/Unified Commands) that are peculiar to this organization type. While nonmilitary organizations may engage in joint ventures, the arrangement is not as formalized as in the military. Also, each military service reports to other civilian authorities (e.g., the President, Defense Secretary, Congress). Further, formal relationships may be established with other governmental and international organizations (e.g., United Nations, NATO). While nonmilitary organizations may retain similar kinds of arrangements, they are rarely as pervasive and formal as in military organizations. Thus, the difference in external systemic focus observed between military and nonmilitary top executives may reflect a very real difference in their required performance functions.

Network development/consensus building. Fewer nonmilitary studies have specifically documented network development and consensus building as key executive performance requirements. Some surveys and observational studies cite somewhat related functions such as communications (Baehr, 1992), information handling (Morse & Wagner, 1978), and interacting with others (Luthans et al., 1985), while others do not mention such functions as important to managerial work (e.g., Haas et al., 1969; Kraut et al., 1989; Mahoney et al., 1965; Tornow & Pinto, 1976). However, in the latter case, exclusion of these functions from work inventories may have reflected the a priori bias of the researcher. Two interview-based studies do provide a strong picture of network development and consensus building as executive performance requirements (Kaplan, 1986; Kotter, 1982a, 1982b). Based on his interviews of 15 general managers, Kotter observed that they established elaborate networks that "often included hundreds or thousands of individuals" (1982a, p. 67). These networks included constituencies such as financial sources; customers; suppliers; government and media contacts; and organizational peers, superiors, and subordinates. Kaplan's interviews with 25 executives confirmed similar networks. As suggested by Stratified Systems Theory (Jacobs & Jaques, 1987, 1990, 1991), both researchers concluded from their interviews that the

purposes of these networks were to (a) facilitate information acquisition, and (b) facilitate the implementation of the executive's agenda. However, unlike with planning and boundary-spanning, no studies have established an empirical link between network development or consensus building (as executive performance requirements) and organizational success. Thus, the empirical question remains as to whether the effective accomplishment of these particular requirements adds value to the organization.

Frame of reference. Relatively few nonmilitary studies have examined empirically the question of whether executives add value to their organizations by developing a complex cognitive map of the organization and its environment. Most of the survey studies focused on measuring behaviors or requisite work activities, not cognitive activities. Kaplan's (1986) interviews with 25 executives did refer to a need to develop a broad organizational perspective. His study also included an analysis of examples of effective and ineffective general managers provided by the interviewees. He concluded the following from his observations (p. 192):

The multifunctional scope together with the sheer bulk of the general manager's domain pose a stiff challenge. By definition, the job requires the incumbent to grasp, though not necessarily master, the full range of functions (marketing, sales, manufacturing, R&D, finance) and at the same time to transcend a functional perspective to achieve a holistic view of the business The thumbnail sketches provide a data point here: six of the GMs classified as effective were seen as understanding the business as a whole, as taking a broad view; three of the ineffective ones were downgraded for not doing so.

This illustrates the importance of an executive frame of reference. However, this observation is grounded in an unscientific interview-based methodology that does not directly measure the content and structure of executive maps. Three recent studies provided data related to the notion of requisite variety that is at the heart of Stratified Systems Theory and its postulates regarding executives' frames of reference. To review,

the complexity of an executive's operating environment requires a causal map of *corresponding* complexity. Following Interactive Complexity Theory, these maps need to be flexibly integrated such that they change structurally in response to changes in environmental causal dimensions. Fahey and Narayanan (1989) derived the causal maps of top executives within a single organization over a 20-year period from annual reports and public statements. This company was one of the two dominant companies in terms of market share in its industry. Manager causal maps were defined as "interconnected assertions of causality decisionmakers chose to reveal to the world around them" (p. 362). Fahey and Narayanan examined the association between changes in top management maps and environmental dynamics. They found that the executive maps were fairly complex, although they still did not fully mirror the complexity of the company's environment:

The structure of the raw and reconstructed revealed mental maps indicates that decisionmakers were cognizant of the complexity of the environment. The content of the maps changed considerably from period to period [of environmental evolution]. Yet, little interconnectedness between elements of the macroenvironment and the industry was present in the maps. This may reflect a difficulty on the part of decisionmakers to construct a complex and integrated view of the environment (p. 374).

Barr et al. (1992) compared the evolution of top management mental maps over time in two demographically similar railroad companies. One company thrived over the 25-year span that was studied, while the other ceased to exist a short time after this time span. As in Fahey and Narayanan, managerial cause maps were measured from statements in annual report data over the 25-year period. Barr et al. found that causal maps from the successful company changed fairly quickly as a function of environmental change while the maps from the failed firm did not. Top managers from the successful company revised their cause and effect associations to reflect new environmental influences, while top managers from the failed company

attempted to explained these new influences through their existing and outmoded understandings. This suggests that both sets of managers *attended* to the environmental changes, but only those in the successful company changed their mental cause maps accordingly.

Both of these studies represent essentially case study approaches that allow only descriptive analyses. Calori et al. (1994) examined executives in 26 companies across four different industries (brewing, car manufacturing, retail banking, and book publishing). These industries were selected to produce variance in the environmental complexity. Following Streufert and Swezey (1986) and Huff and Fletcher (1990), Calori et al. used cognitive mapping techniques to derive, from in-depth open-ended interviews with executives, the comprehensiveness (i.e., differentiation) and interconnectedness (i.e., integration) of their causal maps. They also assessed a company's geographic scope and the diversity of its business portfolio as measures of environmental complexity. They found that executive map complexity was not associated with business diversity. However, they reported that (a) "in firms with an international geographic scope, the CEOs' cognitive maps of the structure of the industry were more comprehensive than those of CEOs in firms with a national scope" (p. 450); and (b) "in firms belonging to a multinational foreign group the CEOs cognitive maps of the dynamics of the industry are more complex [in terms of both comprehensiveness and interconnectedness] than the ones of the CEOs in independent firms" (p. 452).

These studies provide evidence for the notion of requisite variety that argues executives are required to develop casual maps that reflect the complexity of the organization-environment dynamics within which they operate. Unfortunately, they provide no data on differences across organization levels in the requisite quality of leader mental maps. Also, the evidence that the provision of such maps facilitate organizational effectiveness is limited. Fahey and Narayanan (1989) did not link variance in map quality and environmental fit with organizational performance. However, Barr et al. (1992) provided descriptive evidence of such a link. The value of these studies lie not as

much in their findings as in their description of a methodology for studying executive causal maps and their possible influences on organizational processes and outcomes (see also Huff, 1990). Accordingly, they provide a road map for future research.

Evaluation. Taken together, the nonmilitary studies support and extend some of the tenuous findings from the military-based studies. Relatively longer term planning, boundary-spanning, and, to a lesser extent, network formation and frame of reference development have been documented as parts of executive performance requirements. Furthermore, unlike in the military studies, the accomplishment of two of these requirements, planning and boundary-spanning, were empirically linked to organizational effectiveness. Barr et al.'s (1992) case study of two companies also provides descriptive data supporting a link between the complexity of executives' causal maps and organizational adaptation. As a set, the nonmilitary studies employed a greater variety of research methods. Several of them also had large enough samples to permit inferential analyses instead of merely descriptive ones.

Nonetheless, like their military-based counterparts, these studies also have several characteristics that constrain conclusions regarding executive performance requirements. First, a significant proportion of the studies rely on qualitative methodologies such as interviews, case studies, and participant observation. While these approaches have an important place in the study of executive leadership, they must be supplemented with a larger number of more quantitative, nomothetic, and controlled approaches. The nonmilitary studies are an improvement over the military-based studies in this regard, but still fall short. Second, there are still not *multivariate* studies in nonmilitary domains that examine the relative contributions of different executive performance requirements. Some of the studies that developed importance or time allocation ratings for several executive functions provide descriptive evidence for differential contributions, suggesting long-term planning as the most important executive performance requirement (e.g., Kraut et al., 1989; Mahoney et al., 1965). However, a more systematic approach to this question is needed. Third, few of the studies

examine the link between these performance requirements and information-processing demands. This is less serious in the nonmilitary studies than in the military ones because the former were not derived from a theoretical model that suggested such a link. The lack of a conceptual framework for most of these studies leaves open the question, though, of why certain performance functions examined in nonmilitary studies are important for executive and organizational success.

Thus, while the nonmilitary-based studies provide more support than military-based studies for most postulates derived from conceptual complexity theories regarding executive performance requirements, their conclusions still need to be viewed with caution.

REQUISITE LEADER CHARACTERISTICS

The studies described in the previous section provide some support for the premise that information processing demands expand significantly at the top of the organization. Long-term planning and boundary-spanning requirements increase the quantity, diversity, and ambiguity of information that executives must assimilate. Basic principles of cognitive psychology would argue that the presence of such task demands requires higher level conceptual and analytical skills as critical leadership capacities. This is also the central postulate of both Stratified Systems Theory and Interactive Complexity Theory. While executives are likely to possess stronger conceptual, interpersonal, and technical skills than lower level leaders, their level of *analytical capacities* are predicted to be the most significant determinant of their leader effectiveness.

This section examines the empirical evidence for the proposed link between high-level conceptual skills and performance. These skills include the ability to abstract a meaningful pattern, through processes of differentiation and integration, from a complex array of information. They also include the ability to develop novel and innovative solutions to complex organizational problems. Jacobs and Jaques (1987; also, Lewis & Jacobs, 1992) referred to such skills as conceptual

capacity; Streufert and Swezey (1986) described them as reflecting flexible integrative complexity. Mumford, Zaccaro et al. (1993) as well as Mumford and Connolly (1991) emphasized creative or divergent thinking skills as well as complex cognitive and metacognitive problem solving skills as executive competencies (see also Markessini, 1991; Laskey et al., 1990). Each of these cognitive capacities are considered to be conceptually distinct from raw mental ability or intelligence, although the correlation between the two is expected to be significant.

Based on the conceptual models described in Chapter 2, the following postulates regarding requisite leader characteristics were developed for this empirical review:

9. *Executives will possess stronger conceptual skills than lower level leaders.*
10. *Executives will have more complex and integrated cognitive maps of the organization and its environment than lower level leaders.*
11. *Performance at the executive level will be determined primarily by the level of conceptual capacities possessed by the executives and the degree of flexible, integrative complexity of their cognitive maps.*
12. *Executives will display a stronger proclivity for thinking, reflection, and conceptual model building than lower level leaders.*

This empirical review is divided into studies using military and nonmilitary samples, respectively.

Military Studies

Conceptual capacities. Table 3-5 summarizes military studies that focused on the delineation of executive cognitive skills and their association with executive performance. A large proportion of these studies utilized an interview methodology in which top executives were asked to describe the key competencies they believed were associated with effective senior leadership (Harris & Lucas, 1991; Lucas & Markessini, 1993;

Table 3-5. Summary of Empirical Studies Examining Requisite Executive Characteristics in Military Samples

Study	Study Participants	Type of Study	Findings
1. Barber (1990)	270 students at the Army War College (lieutenant colonels and colonels)	Survey/ Descriptive	Senior military officers exhibited higher tendencies toward sensing, thinking, and judging functions of the Meyers-Briggs Type Indicator. The proportion of those scoring high on the intuitive and thinking functions was higher than in the general military population.
2. Harris & Lucas (1991)	8 four-star general officers, 33 three-star general officers	Structured Interviews	Four-star and three-star general officers identified the following as requisite knowledge and skills for their positions: multinational knowledge, knowledge of joint/unified relationships in the military, consensus building skills, envisioning/anticipating skills, skills related to establishing organizational culture and values, and abstracting and synthesizing skills.
3. Horvath, Forsyth, Sweeney, McNally, Wattendorf, Williams, & Sternberg (1994)	81 platoon, company, and battalion leaders	Structured Interviews	Battalion commanders displayed a greater amount of tacit knowledge than platoon leaders and company commanders. Also, the structures of their tacit knowledge representations were more complex.
4. Knowlton & McGee (1994)	1,650 students at the Industrial College of the Armed Forces (lieutenant colonels and colonels)	Survey/ Descriptive	The proportion of students who scored high on the intuitive and thinking functions (NTS) of the Meyers-Briggs Type Indicator (MBTI) was larger than the proportion reported for the general military population, but smaller than the proportion reported for business executives. The largest proportion of students scored high on the sensing and thinking functions of the MBTI.
5. Lucas & Markessini (1993)	48 one-star general officers, 26 two-star general officers	Structured Interviews	Two-star and one-star officers identified the following as requisite knowledge and skills for their positions: knowledge of joint/unified relationships in the military, an understanding of the total Army system, problem management skills, planning and envisioning skills, and communication, networking, and consensus building skills. They also mentioned temperament factors, such as ability to deal with uncertainty and willingness to take risks.

Table 3-5. Summary of Empirical Studies Examining Requisite Executive Characteristics in Military Samples

Study	Study Participants	Type of Study	Findings
6. Markessini (1991)	8 four-star general officers, 33 three-star general officers	Structured Interviews	Recorded data from Harris and Lucas (1991) for mention of metacognitive skills and awareness as requisite senior executive skills. They found that general officers frequently cited such skills as well as cognitive skills related to mapping ability, problem management, long-term planning, and innovative/creative thinking.
7. Markessini, Lucas, Chandler, & Jacobs (1994)	27 members of Executive Service and Senior Executive Service	Structured Interviews	Civilian executives reported requisite position skills, competencies and temperament factors similar to those reported by their military counterparts. These include multinational knowledge, understanding joint/unified relationships across the military service branches, understanding the total Army system, consensus building skills, envisioning skills, ability to find creative or innovative problem solutions, cognitive abilities related to complex analysis and synthesis, and temperament factors related to risk taking.
8. Suedfeld, Corteen, & McCormick (1986)	6 Civil War generals	Archival	Authors developed integrative complexity scores for each of six Civil War generals. They found that in three battles won by Robert E. Lee against greater numbers of opposing forces, his score was substantially higher than that of his opponent. In two of the three battles he lost, his score was lower than that of the opposing commander.
9. Zaccaro, Marks, O'Connor-Boes, & Costanza (1995)	101 military officers, including first and second lieutenants, majors, and lieutenant and full colonels	Survey/Correlational	Colonels displayed stronger complex problem solving skills than majors or lieutenants.
10. Zaccaro, Mumford, Marks, Connelly, Threlfall, Gilbert, & Fleishman (1996)	1,807 military officers ranging in rank from second lieutenant to full colonel	Survey/Correlational	Scores on measures of divergent-thinking ability and complex problem solving skills were correlated with hierarchical level. Higher ranking officers displayed stronger cognitive skills than junior officers.

Markessini, 1991; Markessini et al., 1994). These studies indicated that, for the most part, top executives cited complex thinking and analytical skills and *the awareness* of their own cognitive problem solving processes (i.e., metacognition) as important for their work. They also included as executive competencies such skills as consensus building, risk taking, and dealing with uncertainty. Markessini et al. (1994) reported that civilian executives attributed less importance to some conceptual abilities, risk taking, and complex mental map formation than their military counterparts; they were somewhat higher in terms of the importance attached to consensus building skills.

While informative, such studies do not sufficiently address the postulates guiding this review. While interview-based methodologies have a traditional place in the identification of job content and work performance requirements, self-reports of requisite skills are subject to significant positivity biases. Such an approach is also based on the questionable assumption that interviewees are aware of the relationship between necessary competencies and executive/organizational performance. Further, in the military-based studies the researchers used a content coding analysis to derive skill recommendations from interview protocols by counting the number of officers or civilian executives who mentioned the importance of particular skills. It is not clear from the descriptions provided by the researchers that responses referring to executive performance requirements (e.g., the need for long-term planning; building consensus) were coded distinctly from responses referring to requisite executive skills (e.g., envisioning skills, consensus building and interpersonal skills). Thus, the data from these studies provide insufficient evidence for the efficacy of requisite executive skills.

An interview-based or qualitative research methodology does not adequately address the question of whether conceptual skills increase both in prevalence and importance at the executive level. Nor can it provide information on the relative importance of these skills for enhancing executive performance. More quantitative-based approaches are necessary to address these questions. Unfortunately, no such studies are available that examined complex conceptual skills of officers at the top

military ranks and the association of these skills with executive performance and organizational effectiveness. However, recent data compiled by Zaccaro et al. (1996) indicated a significant positive correlation between the display of divergent thinking abilities and complex problem solving skills, respectively, and military rank in officers ranging from 2nd lieutenant to colonel. In another study, Zaccaro et al. (1995) reported that ratings of conceptual skill reflected in the generation of solutions to ill-defined and complex problems were significantly higher for colonels than for lower level officers. Both studies provide support for the postulate that higher level officers will exhibit stronger conceptual abilities than lower level officers. An extrapolation of these data suggests that systems-level executives would yield even stronger capacities.

An interesting archival-based study was completed by Suedfeld, Corteen, and McCormick (1986) to investigate the integrative complexity of Robert E. Lee and five of his opposing Civil War commanders (Burnside, Grant, Hooker, McClelland, and Meade). They adapted the Sentence Completion Test of flexible integrative complexity (Schroder, Driver, & Streufert, 1967; Schroder & Streufert, 1962) for use in textual analysis and applied this approach to official dispatches, orders, and published letters to derive an integrative complexity score for each military officer. They then associated differences in integrative complexity between Lee and his opposing commanders with battle outcomes. In three battles that Lee won against heavy odds (i.e., against approximately 50% to 75% more opposing forces: Antietam, Fredericksburg, Chancellorsville), his complexity score was substantially larger than that of his opposing commander. In two of the three battles he lost (Wilderness, Spotsylvania), his score was lower than that of the opposing commander.

While the nature of this study precluded parametric or inferential analyses, it does offer some unusual evidence for an association between integrative complexity and military performance. However, this evidence needs to be interpreted cautiously because of several questionable assumptions adopted by Suedfeld et al. (McGee, personal communication). First,

Antietam was scored by Suedfield et al. as a victory for the South, a battle that many historians consider a stalemate.

Second, the six battles selected by Suedfield et al. for their study occurred sequentially in time; earlier battles were won by Lee, while later ones were won by Union generals. Because battle order reflects the effects of prolonged combat and diminishing resources on Lee, the relationship between the differential in complexity scores between Lee and his opponents and battle outcome is confounded by battle order. These and other points (e.g., Lee's physical illness at Gettysburg) mean that the evidence from Suedfield et al., while interesting, needs to be viewed with great caution.

Horvath, Forsyth, Sweeney, McNally, Wattendorf, Williams, & Sternberg (1994) provided some evidence of differences between lower level and midlevel military leaders in the complexity of their work-related knowledge structures. They examined the content and structure of tacit knowledge in platoon leaders and company and battalion commanders. While these are not executive leaders, a trend toward more complexity in knowledge representations across these three levels of organizational leadership would suggest even greater complexity at executive levels. Tacit knowledge refers to "action-oriented knowledge, acquired without direct help from others, that allows individuals to achieve goals they personally value" (Horvath et al., 1994, p. 1). For military leaders, such knowledge is important in the attainment of unit and organizational goals. Horvath et al. interviewed 81 Army officers to elicit leadership experiences resulting in tacit knowledge gain. These stories were coded to identify the content of knowledge gained and then sorted into conceptual categories. These sorts were used to form dissimilarity matrices for the purpose of cluster analyses to assess knowledge structure.

Horvath et al. reported that battalion commanders were more likely than lower level leaders to have a systems perspective of leadership that included information on managing organizational change, protecting the organization, and dealing with poor performers. Likewise, as suggested by Stratified Systems Theory, these leaders were more likely to understand how to balance

short-term production requirements and long-term personnel development needs. These are primarily differences in knowledge content. The proposed complexity of leader knowledge resides not only in the amount of knowledge incorporated into cognitive models but also the structure and organization of this knowledge. The results of the cluster analyses indicated that the knowledge structures of battalion commanders were more differentiated than those of lower level leaders. Horvath et al. concluded that "battalion commanders' tacit knowledge for military leadership is more complexly structured, at least for the items in question, than that of company commanders and platoon leaders" (p. 22).

This study is a valuable one because it represents one of the few attempts in the literature to assess both content and structural differences in military leader knowledge. Several points need to be considered, though. First, the knowledge that was assessed here represents primarily information about how to "get things done" within the organization setting. It is a performance map, not a causal map, of the system dynamics between the organization and its environment, although the latter may incorporate elements of the former. Second, the measure of structure used in this study assessed differentiation, not integration. Streufert and Swezey (1986) argued that flexible integration, not just differentiation, is the requisite organizational leadership skill. Finally, as noted, the leaders examined here are not at the executive rank. A plausible extrapolation of the data is that the tacit knowledge structures of executives will display even greater complexity. However, this extrapolation needs empirical confirmation. Also, it is necessary to associate the complexity of these and other leader knowledge structures to leader performance.

Proclivity. Jacobs and Jaques (1990, 1991) proposed that a proclivity toward mental model building would be conducive to the development of potential executive leaders. They suggested that such an orientation is measured by the intuiting (versus sensing) and thinking (versus feeling) dimensions of the Meyers-Briggs Type Indicator (MBTI). They also proposed that if this proclivity is linked to senior leader development, then there

should be a disproportionate percentage of NTs at higher organizational levels. Further, the proportion of STs, reflecting a more immediate, action-oriented style, should be higher at lower levels of the organization.

While a number of studies have examined such stylistic orientations in business executives (see McCaulley, 1990), few if any studies have been completed on top military executives (i.e., general officers). Two studies, however, administered the MBTI to colonels and lieutenant colonels (i.e., organization domain leaders) at the AWC (Barber, 1990) and at the Industrial College of the Armed Forces (Knowlton & McGee, 1994). Barber found that 25% of the officers in his sample were categorized as NTs while 62.3% were categorized as STs. Knowlton and McGee found that 32% of their sample were NTs while 55% were STs. The average percentages derived from the general military population (i.e., a mix of officers and enlisted soldiers) were 15% and 43%, respectively (Briggs-Myers & McCauley, 1985). Thus, while the largest percentage of colonels were STs, the percentage of NTs in this group was higher in both samples than in the general military population. Note that, according to Stratified Systems Theory, the leaders in this sample would be classified as organization domain leaders. Therefore, the percentage of STs in these samples is expected to be higher than at the systems level, but the percentage of NTs is expected to be higher than at the production level. The trend in these samples compared to the more general military population suggests that the relative proportion of NTs among systems-level military executives may be even higher; however, this requires a more definitive empirical test.

Evaluation. There has been little or no effort to test the postulates regarding requisite leader characteristics in military executives with research methodologies that allow some degree of control and plausible causal inference. Appropriate tests of these postulates require the effective measurement of the proposed qualities such as conceptual capacity in general officers (i.e., systems leaders) and a statistical examination of (a) the differences between these qualities and those of lower level officers; and (b) the congruence between these measures and

indices of individual and organizational effectiveness. Also, for sufficient validation of an executive leadership theory, researchers need to demonstrate a significant association between executive capacities and the accomplishment of executive performance requirements, such as long-term planning, boundary-spanning, and network formation (see Figure 2-1). For example, perhaps the most important premise of Stratified Systems Theory is that high-level conceptual capacities help executives develop the highly complex mental maps required for effective action at the top of the organization. To examine the validity of this premise, researchers need to develop measures of such mental maps and associate them with both executive capacities and organizational performance.

Implementation of this research strategy, or any other that provides valid evidence for the efficacy of military executive conceptual skills, is crucial for another simple reason. The specification of executive leader assessment and development programs for the Army needs to be grounded in a firm and empirically supported understanding of the requisite qualities that must be assessed and/or developed. The components of such programs (e.g., classroom instruction, work assignments, self-development) should obviously be constructed to target empirically validated requisite skills and other executive qualities. A validation of these executive qualities means a demonstration that they are indeed important for executive performance. Qualitative, interview-based data provide a subjective and indirect portrayal of this relationship. Such data need to be supplemented with more objective approaches.

Nonmilitary Studies

Conceptual capacities. Studies of executive leadership and high-level conceptual capacities are relatively rare. Indeed, Bass's (1990) comprehensive *Handbook of Leadership* lists very few references to such variables as complex problem solving skills, creativity, integrative cognitive complexity, or conceptual capacity (although frequent mention is made of general intelligence). The relatively small set of studies that have examined executive differences in creativity, integrative

Table 3-6. Summary of Empirical Studies Examining Requisite Executive Characteristics in Nonmilitary Samples

Study	Study Participants	Type of Study	Findings
1. Baehr (1992)	1,358 managers at multiple organizational levels in companies from four industries (manufacturing, sales, professional, and technical)	Survey/ Correlational	Executives displayed higher creative potential scores than middle- or lower level managers, although differences were smaller in sales and professional industries.
2. Church & Alie (1986)	127 middle- and upper level managers at two manufacturing plants	Survey	upper level management contained significantly more intuitives individuals who "exhibit the conceptual ability to perceive environments as wholes and problems or events as parts of wholes," p. 33) than middle-level management.
3. Chusmir & Koberg (1986)	96 male and 69 female managers from 11 companies (representing service, manufacturing, retail, nonprofit, and wholesale)	Survey/ Correlational	upper level female managers scored higher on a measure of creative-thinking processes than lower level female managers. However, upper level and lower level male managers did not differ significantly in creativity.
3. Dollinger (1984)	82 owner/operators of retail and manufacturing companies (both food and apparel industries)	Survey/ Correlational	Integrative complexity was significantly correlated with intensity of boundary-spanning (i.e., percentage of executive's time devoted to boundary-spanning) but not with extensive boundary-spanning (number of external contacts made). Integrative complexity was not correlated with three indices of organizational performance. However, the relationship between intensive boundary-spanning and company performance was significantly stronger under conditions of high executive complexity.

Table 3-6. Summary of Empirical Studies Examining Requisite Executive Characteristics in Nonmilitary Samples

Study	Study Participants	Type of Study	Findings
4. Isenberg (1984)	12 top senior company managers	Interview/ Observation	Author concluded from interviews that requisite executive qualities include intuitive thinking abilities, problem management skills, and an ability to tolerate ambiguity and deal with anxiety.
5. Kotter (1982a, 1982b)	15 corporate general managers	Interview/ Observation	Common personal characteristics of the general managers included analytical abilities, achievement, and power needs, intelligence, intuition, an ability to relate easily to a broad set of business specialists, and a personable style.
6. McCaulley (1990)	MBTI database at the Center for Applications of Psychological Type	Survey/ Descriptive	Scores for successful executives, relatively unsuccessful executives, middle- and lower level managers, and from the general population were abstracted from the tables provided in this article. Results show that the group of successful executives contained substantially more individuals who scored high on the dimensions of intuiting and thinking on the Myers-Briggs Type Indicator than any of the other groups.
7. Norburn (1986)	354 executives from companies experiencing growth, turbulence, or decline	Survey/ Interview	Executives from high growth companies were more likely to indicate intelligence and creativity as requisite top leader characteristics than executives from turbulent or declining industries.
8. Reynierse (1991)	319 senior outplaced executives	Survey	Equal proportion of executives were classified as high on sensing/thinking and intuitive/thinking dimensions of the Myers-Briggs Type Indicator. Individuals scored as high in sensing, judging, and introverted preferences were overrepresented in this sample of executives who had lost their jobs; individuals scored as high in intuitive, feeling, and perceiving were underrepresented in this sample.

Table 3-6. Summary of Empirical Studies Examining Requisite Executive Characteristics in Nonmilitary Samples

Study	Study Participants	Type of Study	Findings
9. Roach (1986)	70 first-line supervisors, 161 middle managers, and 67 executives from multiple organizations	Survey/ Descriptive	The proportion of individuals scoring on the dimensions of intuition and thinking on the Myers-Briggs Type Indicator rose from 19% in supervisors to 32% in middle managers to 52% in executives; the pattern was reversed for individuals who scored high in the sensing and thinking dimensions of the MBTI.
10. Rusmore (1984)	208 executives at three organizational levels	Survey/ Correlational	Executives displayed higher mental ability and cognitive creativity scores than middle managers and first-line supervisors.
11. Rusmore & Baker (1987)	208 executives at three organizational levels	Survey/ Correlational	General intelligence was more strongly correlated with performance at lower organizational levels; cognitive creativity was more strongly correlated with performance as one ascended the organizational hierarchy.
12. Simonton (1988)	39 U.S. Presidents	Archival	Ratings of presidential intellectual brilliance were significantly associated with historian ratings of presidential performance. Ratings of other personal qualities were not associated with presidential performance.
13. Streufert (1983)	2 executives	Case Study	A successful executive displayed more integrative complexity in a time-event matrix derived from a management simulation game than one rated as unsuccessful.

complexity, and complex mental map formation are summarized in Table 3-6. No nonmilitary studies have explicitly examined the construct of conceptual capacity from Stratified Systems Theory and its influence on executive performance.¹

Observations of executive skills derived from interviews of top business executives (Isenberg, 1984; Kotter, 1982a, 1982b; Levinson & Rosenthal, 1984) yield conclusions similar to those from interviews with military executives. For example, Isenberg observed from detailed interviews with 12 very senior managers, that, unlike lower level managers, they are characterized by integrative thinking processes. Further, their problem management reflects the formation of broad and integrated problem maps:

Managers at all levels work at understanding and solving the problems that arise in their jobs. One distinctive characteristic of top managers is that their thinking deals not with isolated and discrete items but with portfolios of problems, issues, and opportunities in which (1) many problems exist simultaneously, (2) these problems compete for some part of his or her immediate concern, and (3) the issues are interrelated.

The cognitive tasks in problem management are to find and define good problems, to “map” these into a network, and to manage their dynamically shifting priorities.

These processes suggest greater use of conceptual and integrative mapping skills at executive organizational levels. Nonetheless,

¹ Jacobs and Jaques (1991) mention Stamp (1988) as “the best currently available evidence for the importance of conceptual capacity in executive development” (p. 442). This longitudinal study examined the association between predicted and attained organizational levels over a 4- to 13-year span. The prediction of future organizational level was based on an assessment of conceptual capacity at time 1, using the Career Path Appreciation (CPA) technique. The correlations of this index with attained level ranged from .79 to .92. While these numbers are impressive, they do not reflect a relationship between conceptual capacity and executive performance. Instead, they should be interpreted as criterion-related validity coefficients that speak to the psychometric quality of the CPA as a predictor of ascension to executive ranks. This point will be discussed further in the measurement section of this chapter.

as noted earlier, interview-based studies provided insufficient data for the identification and assessment of executive conceptual skills.

Baehr (1992) offers evidence from descriptive surveys for hierarchical differences in creative ability. He measured "potential for intuitive thinking and creative and innovative behavior" (Thurstone & Mellinger, 1957/1985; p. 100) in 1,358 managers at three levels in four different types of industries. The results of these surveys indicated significant differences in creative potential across managerial levels, although these differences were smaller in professional and sales hierarchies. Rusmore (1984) also reported a steady increase in cognitive creativity across groups of first-line supervisors, midlevel managers, and top-level executives. However, a survey study by Chusmir and Koberg (1986) examined creativity in male and female managers at multiple organizational levels and found that hierarchical level was positively associated with creativity for women but not for men. These studies demonstrate some evidence for differences in creative thinking skill across executive levels, but also offer some moderating influences such as the nature of the industry and gender.

Several studies have examined the relationship between executive creativity and organizational performance. Norburn (1986) surveyed and interviewed executives from industries experiencing growth, industries experiencing turbulence, and industries experiencing decline. He found that executives from growth industries were more likely to list intelligence, followed closely by creativity as success traits; executives from declining industries and turbulent industries cited concern of others and personal integrity, respectively, as important executive characteristics. Rusmore and Baker (1987) reported that correlations between creativity and managerial performance across four organizational levels were -.12, .19, .27, and .33. Thus, creative thinking capacities were increasingly related to performance at higher levels of the organizations.

Simonton (1988) rated U.S. presidential biographical references on personality adjectives that were factor analyzed into 14 factors. One of the factors was labeled "intellectual

brilliance," and included, among others, such adjectives as inventive, intelligent, sophisticated, complicated, insightful, and wise. Thus, this factor presumably reflected characteristics similar to the ones proposed by conceptual complexity theories as important for executive leadership. Simonton regressed both objective (e.g., legislative outcomes) and subjective (e.g. historians' ratings) indices of presidential performance on presidential characteristics. While intellectual brilliance had mixed associations with some of the objective criteria, it was the only personal quality associated with rated presidential performance.

Three studies summarized in Table 3-6 provided evidence for an association between executive integrative complexity and performance. One, a case study reported by Streufert (1983), compared the time-event decisionmaking matrices derived from an international business simulation game completed by two executives (see Chapter 2 and Streufert & Swezey, 1986, for additional details on this measure). Peer ratings had identified one executive as more effective than the other. Streufert found that the more effective executive displayed a more integrated and multidimensional decision style than the less effective executive. Suedfeld and Rank (1976) used textual analysis to derive integrative complexity scores for revolutionary leaders who had attained public office and were categorized as either successes or failures. Successful leaders were found to have scored higher in integrative complexity scores at that time of their careers than unsuccessful leaders.

Both of these studies make the case for leader integrative complexity and executive effectiveness through idiographic analyses. A more nomothetic approach was adopted by Dollinger (1984), who measured the flexible integrative complexity of 82 company owners (using the Sentence Completion Test; Schroder et al., 1967). He correlated these scores with (a) the number of external constituencies (extensive boundary-spanning) met by the executive, (b) the amount of time spent with external constituencies (intensive boundary-spanning) and (c) indices of organizational performance (sales, retained earnings, and accrued owner

benefits). Integrative complexity was significantly associated with intensive boundary-spanning, but not with extensive boundary-spanning or with any of the performance measures. However, integrative complexity moderated the influence of intensive boundary-spanning on sales and accrued benefits. Dollinger interpreted the interaction as showing that boundary-spanning time was more strongly related to performance under conditions of high information-processing capabilities. This set of results makes two important contributions. First, it is one of the few empirical studies to associate executive conceptual capacity to an executive performance requirement, i.e., boundary-spanning. Second, it suggests that intensive boundary-spanning per se is not sufficient for the prediction of executive performance; what is also necessary is the capacity to develop an integrated map of information gained from these activities. Of course, this second point is a speculative interpretation of the data; its confirmation would require measures of executive mental models.

Proclivity. Although several studies have examined the distribution of decisionmaking styles among executives and/or across organizational levels (Church & Alie, 1986; Reynierse, 1991; Roach, 1986), the most comprehensive examination is provided by McCaulley (1990). She presents data from the MBTI Atlas of Type Tables that incorporates the results of many studies that administered the MBTI to various samples. For the purposes of this report, certain samples were selected for comparisons. These were (a) several samples of successful executives, (b) several samples of lower level leaders, and (c) two samples of relatively less effective executives. The percentage of STs, SFs, NFs, and NTs computed for each sample is shown in Table 3-7, along with percentages for the general population. The pattern of results suggests support for Jaques and Jacobs' (1991) proposal that a greater proportion of NTs would be evident in the upper levels of the organization, while a greater proportion of STs would be evident at lower levels.

These data suggest that a proclivity for mental model building is associated with top-level management. However, while acknowledging that some types are more highly

represented among senior managers, McCaulley notes that "there is evidence that all 16 MBTI types assume leadership positions" (p. 414). She and others (e.g., Knowlton & McGee, 1994) have argued that effective top-level leadership involves the development and display of both preferred and secondary orientations.

Evaluation. As a group, the nonmilitary studies of requisite executive characteristics are less idiographic and more rigorous than the military studies. Particular studies in this set provide empirical examinations of (a) difference across organizational levels in conceptual capacities, and (b) the association between executive conceptual skills and organizational performance. Finally, a substantial number of studies have examined the proclivity hypothesis offered by Jacobs and Jaques (1990, 1991).

Nonetheless, this body of work is deficient in several ways. First, research is still limited on the quality of executive maps and organizational performance. Although the studies by Barr et al. (1992), Calori et al. (1994), and Fahey and Narayanan (1989), which were described earlier in this chapter, provided a framework for such research, they did not adequately address the causal role of complex maps in executive leadership. Second, while some studies have addressed postulates 9, 11, and 12, there is still a need for more nomothetic research that provides the basis for more adequate generalization across types of executives. While the proportion of nonmilitary studies that are idiographic in nature is considerably less than in the set of military studies, it is still too large to provide a sufficient understanding of executive leadership. Third, the examination of postulates 9-12 requires multivariate studies that control for the possible spurious influence of other variables. For example, until such studies are completed, one cannot answer the criticism that an observed relationship between executive conceptual capacity and performance can be attributed to such unmeasured causes as intelligence, high-level social skills, and certain dispositional orientations (e.g., tolerance for ambiguity, openness), each of which may correlate to a greater or less degree with conceptual skill. Finally, the nonmilitary studies tend not to proceed from a theoretical framework. While the

Table 3-7. Comparison of MBTI Dimensions Across Samples of Executives and Nonexecutives

Sample	MBTI Dimensions ^a			
	ST	SF	NF	NT
Successful Executives				
Federal Senior Executives	46.0%	5.1%	8.5%	40.4%
Top Executives (from CCL)	51.4	5.8	6.5	47.0
Highly Rated Executives (from CCL)	38.6	7.3	12.2	41.8
Top Education Leaders	56.5	9.6	30.0	28.3
Founders of Highly Successful Companies	35.9	4.4	8.8	41.1
Executives (Roach 1986)	30.0	3.0	15.0	52.0
Japanese CEOs	36.4	16.9	9.3	37.2
Japanese Executives	37.4	19.7	12.5	30.4
"Unsuccessful" Executives/Middle Managers and Supervisors				
Low-Rated Executives (from CCL)	56.5	5.6	9.9	28.3
CEOs from Limited Growth Companies	70.7	15.3	3.3	10.7
Middle Managers (Roach 1986)	46.0	11.0	12.0	32.0
Supervisors (Roach 1986)	53.0	17.0	17.0	19.0
Japanese Middle Managers (Overall)	46.7	17.2	9.5	20.8
Japanese Middle Managers (Chemical Industry)	38.8	27.1	6.4	34.5
Japanese Supervisors	29.7	52.5	9.2	8.8
General Population	38.0	38.0	12.0	12.0

Note:^a CCL = Center for Creative Leadership

MBTI = Myers-Briggs Type Indicator

ST = Sensing/Thinking

SF = Sensing/Feeling

NF = Intuitive/Feeling

NT = Intuitive/Thinking

Derived from McCaulley (1990).

results from these studies can be interpreted through the conceptual complexity theories described in Chapter 2, the questions they asked were not derived specifically from these theories. Thus, the conceptual basis for why certain relationships were observed between executive qualities and organizational processes and outcomes remains ambiguous.

MEASUREMENT OF CONCEPTUAL CAPACITY

Effective evaluation of an executive leadership theory requires an appropriate operationalization of its central concepts. The CPA technique and the Strategic Leader Development Inventory (SLDI) have been developed within the context of Stratified Systems Theory to assess conceptual capacity. Several measures of integrative complexity have been developed for Interactive Complexity Theory (e.g., Sentence Completion Test, Impression Formation Test, time event matrices). Streufert and Swezey (1986) provided a substantial review of their psychometric qualities; the reader is referred to that source as well as to Streufert and Streufert (1978) for this information. Also, because the development of the SLDI is very recent, little evidence exists regarding its psychometric qualities. Stewart, Kilcullen, and Hopkins (1993) presented some data demonstrating high internal consistency for the individual scales making up the SLDI. They also found that the correlations among the dimensions on the SLDI are lower than their internal consistency coefficients, which suggests a degree of discriminant validity among the factors. Because no other psychometric data are currently available regarding the SLDI, it will not be discussed further. Hence, the present report will review only the evidence for the psychometric quality of the CPA. The following postulate is evaluated:

- 13. The Career Path Appreciation technique will exhibit acceptable levels of reliability, construct validity, and criterion-related validity.*

Career Path Appreciation

The CPA involves a 2-hour interview that provides data used to judge or rate an interviewee's current and predicted levels of conceptual capacity. Jacobs and Jaques (1990) stated that assessment of CPA data requires substantial expertise in Stratified Systems Theory and a Level IV conceptual capability as defined by this theory. Thus, the issue of interrater reliability is an important one. Lewis (1993, 1995) administered the CPA to two classes of colonels at the AWC. He reported the same interrater reliability coefficient of .81 from each sample. Lewis (1993) also examined the internal consistency of the PHRASES part of the CPA. This subtest required interviewees to examine nine sets of six cards containing phrases that describe approaches to work. Each of the six cards reflected a different level of work capacity. Interviewees were required to select and discuss phrases reflecting how they "most" and "least" like to work (see Chapter 2 for a more extended description of the CPA and its components). Lewis (1993) reported that the Cronbach Coefficient Alpha for the "most" responses across the nine sets was .78. Also, the multiple correlation of the PHRASES and SYMBOLS sections of the CPA with a rater's overall judgement of conceptual capacity was .76. Lewis (1993, 1995) did not, however, report the correlations among the three components of the CPA.

The construct and predictive validity of the CPA was investigated in three studies (Lewis, 1995; McIntyre et al., 1993; Stamp, 1988). Lewis (1995) interviewed and surveyed 44 students attending either the AWC or the Industrial College of the Armed Forces. He examined the associations between conceptual capacity scores derived from the CPA and (a) Kegan's breadth of perspective concept, (b) instructor ratings of a student's strategic thinking skill, general officer potential, and peer popularity, and (c) scores from two measures of personality style (MBTI and Kirton Adaptation-Innovation Inventory (KAI)). Breadth of perspective reflects "the capacity of the leader to take a broad view of his or her work environment, relatively unencumbered by narrow self interest or the prevailing mind set of others in the organization" (Lewis, 1995, p. 5). Conceptual

capacity was expected to be significantly associated with this capacity as well as to instructor ratings of strategic thinking and general officer potential. It was not expected to be associated with ratings of peer popularity or to measures of personality style. Lewis found that CPA scores were indeed significantly correlated with breadth of perspective, strategic thinking skill, and general officer potential, although the correlations were generally modest for convergent validity coefficients (r_s ranged from .23 to .57). CPA scores were not correlated with peer popularity, or with the extraversion-introversion and feeling-thinking dimensions of the MBTI. However, correlations with the KAI scale ($r = .63$) and the intuiting-sensing scale of the MBTI ($r = .58$) were high for the purposes of discriminant validity. Thus, these data provide mixed evidence for the construct validity of the CPA.

McIntyre et al. (1993) completed three studies with undergraduate students to examine the construct validity of the CPA. In the first investigation, they examined the convergent validity between the CPA and the KAI, scores on two learning and performance tasks that required logical problem solving and non-linear thinking, and the interviewee's age. In the second study, they examined the CPA's convergence with career decisionmaking skills, complexity of career choices, age, creativity, and a different measure of cognitive complexity. In the third study, they examined the association between the CPA and several personality orientations as measured by the MBTI and the NEO Personality Inventory. The CPA was expected to be correlated with lower neuroticism, more openness to experience, and the intuiting and perceiving scales of the MBTI. In all three of the studies, McIntyre et al. also examined the degree of discriminant validity between the CPA and various measures of intelligence (GRE and SAT scores; Wonderlic scores).

The results across the three studies suggested that different parts of the CPA may reflect two distinct constructs—one construct reflecting a willingness or proclivity "to tolerate ambiguity and deal with complex environments" (McIntyre et al., 1993, p. 12), the other reflecting a person's level of conceptual capacity. Proclivity is reflected in performance on the phrase

selection task, while capability is reflected in the symbol sort task. However, some of the personality measures were linked to both proclivity and capability. Also, some of the capability measures (e.g., scores on the performance tasks, measures of achievement and intelligence) displayed modest or insignificant correlations with the capability components of the CPA. Thus, while there may be two distinct constructs within the CPA, the results from this study do not clearly distinguish between them.

McIntyre et al. (1993) reported generally high correlations between scores on the CPA and creativity. They also found that individuals who displayed high CPA scores "tend to be self-confident, able to handle ambiguity, capable of working on different projects simultaneously, and insightful" (p. 27). In general, the modest correlations of CPA scores with various measures of intelligence and achievement were sufficient enough to indicate discriminant validity.

Taken together, the results suggest that the CPA is conceptually multicomponential, reflecting more than one construct. However, these studies do not provide sufficient clarity regarding the validity of each of its component constructs. This lack of conceptual clarity does not prohibit the use of the CPA for assessment purposes if it can be demonstrated to be associated with executive performance or attainment of executive rank. The use of the CPA as a research tool to determine critical executive competencies and personality orientations, though, is more problematic because multiple competencies and orientations seem to be indicated by aggregate CPA scores.

Stamp (1988) provided evidence for the predictive validity of the CPA. She administered different versions of the CPA to 182 managers in four different organizations and derived predictions of their current levels of conceptual capacity. She also used Jaques's (1986) growth curves (see Figure 2-1) along with each manager's age and current capability to predict the probable level of organizational work the manager would attain. Her criterion was the actual level attained by each manager 4 to 13 years later. The correlations between predicted and actual attained work levels found in various samples ranged from .70 to .92. These

predictive validity coefficients are higher than those typically found in several studies (e.g., Anstey, 1977; Bray, Campbell, & Grant, 1974; Dunnette, 1972; Herriot, 1987; Hunter & Hunter, 1984) that used different procedures to predict work potential (range of correlations across these studies reported by Stamp was .14 to .78; mean $r = .34$).

Summary

The data from these studies indicate that the CPA has demonstrated reasonable levels of interrater reliability and internal consistency. No examination of test-retest reliabilities has been completed to date. Given that the conceptual qualities assessed by the CPA are proposed to be highly stable, studies of such reliabilities would yield useful information. Research on the CPA has also provided evidence for its predictive validity. The validity coefficients from Stamp (1988) are quite impressive. They suggest that the CPA can provide useful information for the purposes of assessment and selection.

The data on construct validity appear more problematic. Stamp (1988) demonstrates that whatever the CPA measures, it predicts the organizational level eventually attained quite well. Because the prediction of level was based on theoretically driven cognitive capability curves, the high correlations reported in this study suggest some degree of validity for the CPA as a measure of conceptual capacity. However, more direct studies of construct validity do not provide sufficient evidence for the clarity of the constructs being assessed. Indeed, the predictions made in one study (Lewis, 1995) are contradicted by the predictions made in another (McIntyre et al., 1993). Lewis proposed that the CPA should be unrelated to measures from either the MBTI and the KAI. McIntyre et al. proposed that the CPA is related to the KAI as well as to specific dimensions of the MBTI. The latter study decomposes the CPA into different (but related) constructs, which may account for these different predictions. Nonetheless, the picture that emerges from these studies is not precise with respect to the particular individual characteristic(s) being measured by the CPA.

As noted earlier, this is not a problem per se for assessment uses of the CPA. However, to construct appropriate executive leader training and development programs for use by the Army, it is necessary to have more precise information about what individual qualities to target. Such information comes from a demonstrated linkage between particular skills or competencies and the successful accomplishment of necessary executive performance requirements. Because the CPA appears to assess multiple individual qualities, any association between this measure alone and such performance requirements will not provide sufficient evidence for particular key executive characteristics. This evidence can be ascertained from carefully controlled studies that combine the CPA with other measures of its individual components. Such studies would allow a more precise identification of particular qualities being assessed by separate parts of the CPA and, more importantly, the statistical control of some characteristics to ascertain the direct effects of others.

The CPA is a difficult and time-consuming measure to administer. This led McIntyre et al. (1993, p. 28) to state that

It appears unlikely that the CPA will ever see extensive operational use for selection purposes in military settings. The cost of administration is high in the first place. And the tool is potentially vulnerable to compromise, in the second place.

This is unfortunate. However, any assessment of high-level complex cognitive capabilities will probably require an assessment procedure that is more likely equally cumbersome and time consuming. Such capabilities cannot be assessed adequately through short and simple multiple choice inventories. Constructed response tasks, where assessees are required to construct or develop (rather than choose) a response to a stimulus configuration, will likely be the more appropriate assessment strategy (Ackerman & Smith, 1988; Bennett, 1991a, 1991b; Bennett et al., 1990; Sebrechts et al., 1991). The validation of such tools are problematic and may require unconventional research strategies (Bennett, 1993a, 1993b; Bennett et al., 1990; Braun, 1988). However, if conceptual

capacities are significantly associated with executive performance requirements, then their measurement, no matter how difficult, becomes an important priority.

SENIOR LEADER DEVELOPMENT

Jaques (1986) argued that an individual's *potential* conceptual capacity was fairly immutable over a career span—that is, his or her maximum cognitive power was fixed and not susceptible to developmental intervention. However, individuals do mature within a particular range of cognitive power such that they become increasingly capable of working at higher organizational levels, up to the maximum limits of their cognitive power. Lewis and Jacobs (1992) argued that this maturation is likely to occur when, in the course of their work, individuals are required to confront limitations in their way of construing experience and therefore develop new and broader frames of reference. They suggested that work assignments be constructed to foster the development of new ways of understanding more complex organizational domains.

Even though Stratified Systems Theory posits that conceptual capacity is the primary determinant of strategic leadership potential and executive success, other skills need to be developed before managers gain top organizational ranks. These include what Jaques et al. (1986) termed *psychological equipment*—the knowledge, skills, values, and temperament necessary for managerial work. These qualities are more modifiable and therefore were recommended as the basis for targeted managerial training. Indeed, the U.S. Army has sponsored the development of several training programs that focus on these leadership qualities.

Leader development in the U.S. Army rests on three pillars, (a) school-based training and classroom instruction, (b) experiential-based learning through unit and duty assignments, and (c) self-development practices. The Army's systematic leader development efforts occur principally through school-based training. Leadership schooling begins prior to commission through Reserve Officer Training Corps (ROTC), the

U.S. Military Academy, and Officer Candidate School. After commission, officers attend specific schools at particular points during their ascendance through Army ranks. Newly commissioned officers attend the Officer Basic Course, while senior lieutenants and captains attend the Officer Advanced Course. Captains also attend the Combined Arms and Services Staff School. Majors and some lieutenant colonels attend the Command and General Staff College. Lieutenant colonels and colonels attend the AWC. Some of these officers also attend the National Defense University in lieu of the AWC. The curriculum at each of these schools is designed to provide officers with skill training commiserate with the performance requirements at their present organizational level or the level they are approaching. Leader development through unit assignment is much less organized, although the curriculum at various schools provides instructions to commanders on how to develop leader skills in their subordinates through work assignments and systematic feedback.

Self-development efforts are the least organized of the three Army leader development pillars. A recent conceptual review of such efforts in the Army concluded the following (Bryant, 1994, p. 9):

Self-development based largely on self education necessarily plays an inordinately important role in perfecting skills, maintaining competence, and promoting professional growth. Unfortunately, however, too much may be asked of self-development within the contemporary context. In this regard, the self-development pillar has become something of a residual category of professional education, a kind of "catch-all" mechanism, as it were. That which cannot be accommodated within the more formal educational mechanisms can be relegated to the informal mechanism. The self-education process, perhaps today is the object of unrealistic expectations. The Army recognizes that the professional has the responsibility and the need to "continue to expand [his or her] knowledge base," and speaks of various means of accomplishing this. Included

are such devices as correspondence courses, civilian education, and/or reading programs. In the absence of specificity, elaborate guidance and counsel, or purposive structure, the self-development pillar of the leadership program is probably not formidable enough to adequately address the tasks, and this would seem to warrant a concerted strengthening and augmentation effort.

A complete review and evaluation of all Army leadership development efforts subsumed under these three pillars is beyond the scope of this report. Instead, the focus here is primarily on military efforts to foster the development of cognitive skills such as creative thinking, decisionmaking and strategic problem solving. Stratified Systems Theory as well as other conceptions of executives skills suggest that such skills become relatively more important as leaders ascend the organizational hierarchy. Unlike conceptual potential, these skills theoretically can be improved through targeted training. Further, when officers are placed in situations where the limits of their current frames of reference are challenged, such skills can facilitate the formation of different and novel ways of construing experience. Thus, they may be highly instrumental in promoting an individual's growth in conceptual capacity within predetermined paths. This suggests the following postulate:

14. Leader training and development interventions designed to enhance decisionmaking and strategic problem solving skills, creative thinking capacities, and the ability to develop more complex causal maps will demonstrate acceptable validity.

This section will review research on the development of cognitive skills in officers from pre-commission (e.g., ROTC training programs) to the rank of colonel. The focus is primarily on Army-based programs. Few if any studies have investigated and demonstrated inter-service validity, where programs developed in one military service were equally effective in another. Transfer from military settings to nonmilitary settings, and vice versa, has also not been demonstrated systematically. Thus, only programs designed and implemented within the Army will be examined. One exception is Streufert, Nogami, Swezey, Pogash, and Piasecki (1988), who developed a

computer-assisted managerial training program to enhance adaptive differentiation and flexible integration skills. The development of this program was sponsored by ARI and targets the primary executive leadership qualities proposed by Interactive Complexity Theory. Thus, even though apparently it has not been tested or implemented with military personnel, it was included in this review.

Criteria for Evaluating Training Effectiveness

An evaluation of how much skill enhancement has occurred through targeted training and development interventions should be grounded in several specific criteria. Kirkpatrick (1959) proposed four criteria for training evaluation. As defined within the military domain, these are:

- **Reaction criteria:** officer impressions of and attitudes toward the program;
- **Learning criteria:** measures of learning and knowledge gained by the officer during training;
- **Behavioral criteria:** degree of improvement in targeted behavior change exhibited by the officer while in an actual command position;
- **Results criteria:** gains in effectiveness and performance of units under officer's command, according to Army-established goals and objectives.

An assessment of training results using all of the aforementioned criteria is the most effective way to evaluate the success of leader development programs. Reaction and learning criteria provide information regarding the internal content and context of training, while behavior and results criteria provide data regarding the payoff of training for Army leader effectiveness in actual command situations. Reaction data are typically collected in the form of attitude surveys to participants. Learning criteria are often in the form of examinations administered to training participants to assess knowledge gain. As Goldstein (1991) argues, learning measures "must be objective and quantifiable indicants of the learning that

has taken place in the training program. They are not measures of performance on the job" (p. 563). The latter represent behavior criteria and reflect the degree to which training gains transfer to leadership behavior displayed in subsequent actual command positions. Again, such data should not be gathered by means of participant surveys. Results criteria should reflect the desired outcomes of effective leadership for a leader's unit and for the Army as a whole. Such criteria are exceedingly difficult to collect, but represent the most appropriate measure of a training program's worth to the Army in terms of its overall objectives.

The studies reviewed in this section will be examined within the context of these four criteria.

Leader Cognitive Skill Development in the Army

The studies reviewed here cover the training of Army personnel from ROTC cadets (Twohig et al., 1987) to division and corps commanders (Lucas, Harris, & Stewart, 1988). Some of these studies evaluate specific training programs (e.g., Streufert et al., 1988; Twohig et al., 1987; Zsambok, 1993a, 1993b), while others provide data on the broad scope of training provided to targeted officers (Savell, Tremble, & Teague, 1993). As a set, they describe training efforts having as their goal the enhancement of leader cognitive skills. Most likely, this is not an inclusive sample of *all* training programs in the Army that have targeted cognitive skill development. Many of these programs have not been formally evaluated, are not written up in formal documentation, or data from them are not available for public distribution. Nonetheless, the set of studies summarized here do provide an informative picture of senior leader development efforts. Furthermore, several of these studies were completed under the aegis of ARI's Strategic Leadership Technical Area and reflect the theoretical perspective of Stratified Systems Theory.

Junior officer training. Three studies examined cognitive skill development in training programs that targeted officers and cadets below battalion and brigade command. Twohig et al. (1987) examined the use of a cognitive skills training program

called Instrumental Enrichment (Feuerstein, 1980) in ROTC. This program contained 14 training instruments, each designed to teach a particular cognitive skill (e.g., concept organization; frame of reference development; logical thinking). Trainee learning is mediated by teacher interventions designed to help students abstract and apply cognitive principles. While Twohig et al. used an experimental design to evaluate the effectiveness of this program in ROTC, the program was canceled after 1 year, preventing the comparisons called for by the design. Student participants reported positive reactions to the program and noted gains in their own cognitive skills. Instructors also responded favorably to the program and perceived student improvement in the areas of writing communication, thinking skills, planning, cognitive style, metacognition, and motivation. Unfortunately, the termination of the program did not allow for the collection of learning, behavioral, or results criteria.

Studies by Harman et al. (1993) and Savell et al. (1993) provided more broad stroke evaluations of Army leader development efforts. Both studies involved interviews of officers in operational environments; thus, they consist mostly of reaction data. Harman et al. examined post-institutional, unit-based development that reflected the experiential or work assignment pillar of the Army Leader Development system. They interviewed junior officers and their commanding officers on the orientation and assessment of newly arriving officers, the quality of performance feedback they received from their superiors, and the consequent development of their leadership skills. Harman et al. found that while a full range of technical and interpersonal skills were targeted in unit development efforts, a significant portion of attention was also directed at the enhancement of cognitive and decisionmaking skills. Both junior and senior officers rated the effectiveness of their unit's leader development practices very favorably. Savell et al. (1993) administered a survey to a sample predominantly composed of company-grade officers. The purpose of the survey was to assess the efficacy of Army leader training efforts in the context of Operation Desert Shield/Storm (ODS/S). Results of the survey indicated that the more important leadership competencies, based on experiences in ODS/S, were professional ethics,

decisionmaking skills, technical/tactical skills, and planning (importance ratings of these and other skills varied somewhat across types of units and whether the officer was in a command versus staff position). More importantly for the present review, approximately three quarters of the responding officers rated the Army Leader Development programs as successful in enhancing these leader competencies.

These studies provide some data suggesting general officer satisfaction with the school-based and operational components of the Army Leader Development programs. They suggest that Army leadership schools are providing appropriate training with respect to general cognitive skill enhancement and that units are providing the context to practice and enhance such skills. However, two caveats exist regarding these studies. First, the data are almost entirely reaction criteria. There is no systematic assessment of learning, behavior change, or unit results. Harman et al. (1993) provided data from commanders who rated favorably the generic leadership skills of their newly arriving subordinate officers. Further, Savell et al. (1993) reported that company-grade officers gave their ODS/S commanders high ratings on overall leadership qualities and, more specifically, their communication of their unit's mission objectives. Although subjective and unsystematic, these survey responses are suggestive of some success in terms of learning and behavior change as a function of the Army Leader Development programs. Nonetheless, there is a need to collect more objective learning, behavioral, and results criteria regarding the influence of specific developmental interventions.

The second caveat regarding the aforementioned studies is that while participant reactions indicated that school-based and operational practices are providing opportunities to learn, practice, and enhance newly acquired skills, these practices are not apparently designed to stretch the limits of an officer's frame of reference such that they are forced to develop new and broader causal maps. Lewis and Jacobs (1992, pp. 135-136) offered the following reason for the low impact of instructional programs on conceptual capacity:

The reasons traditional instructional methods typically fail to have an impact on conceptual capacity is that information presented can often be assimilated to the student's current cognitive structures. When they cannot, the instructional materials are such a small part of the individuals' experience that persons can compartmentalize the resulting dissonance and thereby avoid changing their fundamental conceptual orientation to their larger world. Only when one experiences a failure to master one's larger world is there the possibility that one's views of the world will expand.

Lewis and Jacobs argued that managerial development should involve planned assignment into "successfully more challenging work roles where a mentor is present who can help the new manager better understand the new, more complicated world in which the new manager must now operate" (p. 136). This requires a well-planned effort and considerable expenditure of time on the part of a new leader's superior. However, as Harman et al. (1993) found, these are short commodities in Army units. For example, senior commanders indicated that they do not develop individualized leader development plans for their subordinate officers, except in the case of unsatisfactory performance. Further, the dominant suggestion for improved unit-based training efforts was more time for the commanding officer to conduct training and development. However, one intriguing suggestion that was offered by these officers was a request for "more opportunities to train at the next level up." While not described in any detail by the authors, this suggestion appears to be a recognition for the need to push junior officers into more challenging organizational work.

Transitional and senior officer training. The prior studies described junior officer training programs that prepare the groundwork for more advanced leader training efforts. The studies described in this section targeted primarily battalion and brigade commanders with the expectation that their training and development is geared toward the acquisition of skills necessary for senior command levels. Such training can be called *transitional training* because leadership at this level is the bridge

to leadership in strategic domains. Indeed, many officers at this level are beginning to serve in staff roles where they may be provided with exposure to and opportunities for strategic and systems-level thinking.

Two studies sponsored by ARI have examined the readiness of lieutenant colonels and colonels to respond effectively to the increased information processing and cognitive demands operating at their organizational level and higher (Laskey et al., 1990; Stewart, 1992). Stewart interviewed 29 battalion commanders and their immediate supervisors to ascertain their strengths and weaknesses. He found that such commanders had significant technical and interpersonal skills (although a few weaknesses were mentioned in this area). However, regarding conceptual skills, Stewart concluded that (p. vii):

On average, battalion commanders have not been adequately prepared conceptually to deal with their job demands. Many lacked the ability to put their operations in the context of prevailing doctrine's focus at the operational level. This finding suggests that the educational/training process needs to be examined.

Stewart also provided some reactions from commanders on key life experiences that had developmental implications for them. Interestingly, brigade commanders cited their attendance at the AWC as a "mind broadening" experience, suggesting that the AWC may be providing the opportunity for the kinds of reflection that promote the conceptual shift required for more senior command levels.

Laskey et al. (1990) provided additional data regarding the level of conceptual skills displayed by officers at the rank of lieutenant colonel or colonel. They observed the planning and decisionmaking orientations of officers participating in the Crisis Decision Exercise at the National Defense University. They also compared these approaches with those typically used by upper level executives. They reported three major differences: (a) NDU students displayed more "bottom-up" planning that was described as more reactive and reflecting more tactical than strategic goals; executives typically engaged in more top-down

and more global or strategic planning; (b) students engaged in little contingency thinking; executives used “what-if” processes to consider multiple solution paths in the case of possible failure along any one path; and (c) students tended to generate and consider only immediate and first-order consequences of their actions; executives were more likely to consider second-order and cascading consequences of their decisions. Based on their model of executive thinking and the results of their observations, Laskey et al. (1990, pp. 57-58) offered the following recommendations for training curricula in the military schools:

- instruction on problem formulation and top-down, goal-driven planning;
- formal instruction on generating and evaluating several options as opposed to a strategy of finding only one good option;
- instruction on perspective taking. In particular students need to understand the other side’s position and how their own actions impact on them.
- teaching students to be explicitly aware of their approach to planning and decisionmaking, and encouraging them to adopt . . . metacognitive structures.

Both Stewart (1992) and Laskey et al. (1990) document deficiencies in the development of the kinds of high-level conceptual skills proposed by Stratified Systems Theory and Interactive Complexity Theory for executive success. They both suggest more targeted school-based instructional programs to enhance decisionmaking and problem solving skills. Several studies have been sponsored by ARI to either (a) evaluate existing programs for their effectiveness in enhancing such skills; or (b) develop new training programs to enhance such skills. Stewart and Hicks (1987) evaluated a course offered by the CCL that had the following elements: decisionmaking, situational leadership, utilizing group resources, innovative problem solving, presentation and preparation for goal setting, goal setting activities, presentation of feedback, peer feedback, staff feedback, and assessment activities. They surveyed 25 colonels who participated in the course. Generally, the course elements were

rated favorably by its participants; however, the lowest rated components were goal setting and innovative problem solving. Also, participants indicated modest improvements in their own leadership abilities but somewhat higher improvements in self insights. Finally, 70% of the participants reported the course to be worthwhile to the Army, relative to personal and institutional costs.

Lucas et al. (1988) evaluated the utility of the Joint Exercise Support System (JESS) simulation for executive development. The JESS is a computer-based program that simulates combat, combat support, and combat service support battle elements. It was designed for use by officers at the joint task force, corps, division, and brigade levels participating in the Joint Readiness Exercises. The evaluation of JESS consisted of observing its use during these exercises to determine its potential as an executive development tool. Lucas et al. concluded from their observations that the JESS was appropriate for the development of technical and interpersonal skills, but did not "appear to stimulate essential cognitive skills, shared command concept, or the intensity and precision of staff planning and time distance coordination required of an operational training system" (p. 21). They found that the JESS did not have the capability to target such executive skills as envisioning, proactive responding, information scanning, and reflective thought.

Two observations about these studies are apparent. First, both the CCL course and the JESS program exhibit limited success in facilitating the kinds of skills proposed by Laskey et al. (1990) as important for military executive performance. Thus, they provide illustrations of Laskey et al.'s conclusions that potential senior officers were deficient in this skills. Second, the evaluation of these programs is grounded primarily in "second-order" participation (i.e., data collection is only through observation, not from participant/unit feedback) or in reaction data. There is little gathering of appropriate learning, behavioral, or results criteria.

Three studies sponsored by ARI describe the development and evaluation of programs designed specifically to enhance complex thinking skills. Stewart and Angle (1992) examined the

effectiveness of a training course developed to facilitate creative problem solving. One hundred and nine college students were asked to complete material and verbal problem solving tasks that required creative thinking. Students completed these tasks both before and after the completion of the course. Students were also divided into experimental and comparison groups (i.e., students from a different course). The results of this study were that (a) subjects in the experimental condition displayed significantly greater improvement on the material task from the pretest to the posttest than the control subjects; and (b) training increased participants' tolerance for ambiguity and their appreciation for unstructured problem solving. Stewart (1994) described an adaptation of this course for use at the AWC. Although he does not provide a formal evaluation of this program's effectiveness, he did report that (p. 25):

It was ours and the students' subjective assessment that this form of instruction was more beneficial in improving the target [knowledge, skills, and abilities] than would have been any of the other instructional approaches used at the AWC for achieving the same ends. Also, it improved KSAs other forms of instructions just couldn't.

While this observation represents second-hand reaction data, when added to the experimental data, it does suggest some promise for the utility of this course in training creative problem solving.

Zsambok (1993a, 1993b) developed a training program to help senior officers institute effective strategic decisionmaking in their teams. Based on prior theoretical work and observations of strategic decisionmaking teams, Zsambok specified 10 key behaviors associated with effective team performance. The first four (defining roles and functions, engaging team members, compensating actions, and avoiding micromanagement) fostered a greater sense of team identity. Four additional behaviors fostered the team's conceptual level, or the intelligence of its problem solving and decisionmaking actions. These were envisioning goals and plans, focusing on the time horizon and range of factors, detecting gaps and ambiguities, and achieving situation assessment by diverging and converging. The final two

behaviors, adjusting team performance action and time management, referred to team regulatory mechanisms. These behaviors were integrated into the Advanced Team decisionmaking model (ATDM). Zsambok designed a training program to foster knowledge of the ATDM. This program contained instructional material on this model, a strategic decisionmaking exercise, and materials designed to facilitate team self-appraisal and feedback during the exercise.

Zsambok (1993a) administered an early version of this program at the Air Force Institute of Technology. While her description of this study is limited, she reported that "trained observers found that the treatment team improved by 73% in its use of key decisionmaking behaviors, while the control team . . . improved by just 28%" (p. 2). The productivity of the experimental team exhibited a lower baseline than the control group, but surpassed the control group by the final two (out of four) performance sessions. Zsambok (1993a, 1993b) also administered the program at the Industrial College of the Armed Forces (ICAF). Thirty-eight teams completed a survey designed to assess this model. The results indicated that the ATDM model was perceived as reflecting behaviors associated with high team performance and that learning and practicing ATDM resulted in (a) greater understanding of effective team behaviors and (b) improvements in reported team performance quality. While the data from ICAF reflect reaction criteria, they suggest that the ATDM model may be a useful vehicle for enhancing complex thinking and problem solving skills in senior leadership teams.

Streufert et al. (1988) designed a training program to facilitate the development of flexible, integrating thinking in managers. This program involves the use of quasi-experimental simulation techniques in which a trainer has control over the flow and presentation of information to the trainee, as well as control over other task characteristics, events, and demands. Trainees make decisions within this controlled context in response to complex problem scenarios. The simulation is designed to assess the structure (e.g., differentiation, integration) of an individual's decisionmaking. The training program also

provides instructions to participants on how to think in integrated and complex ways.

Streufert et al. (1988) described an experiment in which one group of managers received the training simulation exercise with its instructional unit on the structure of flexible and integrative information processing. They also received information on what functions they ought to accomplish to be successful in the kinds of problems represented in the exercise. Thus, they received both content-specific and information-structuring instructions. A second group received only the content-specific training, while a third group received no training at all. All groups participated in one simulation prior to training and in a different simulation after training. Streufert et al. reported that after training both the structure/content and the content-alone groups showed gains in performance. The control group exhibited no performance gains. Also, greater gains in performance were recorded by the group of managers who received content and structuring information. These results suggest some success, then, in developing complex cognitive skills through a combination of simulation techniques and instructional materials. ARI has sponsored the development of similar training programs for use in the military (Swezey et al., 1984).

The studies by Stewart and Angle (1992), Zsambok (1993a, 1993b), and Streufert et al. (1988) illustrate the utility of new developmental interventions designed to enhance the critical executive skills targeted by Laskey et al. (1990). None of these interventions have been systematically integrated into the curriculum of the Army schools. However, such efforts apparently are ongoing at the AWC and ICAF, as indicated by both Stewart (1994) and by Zsambok (1993a, 1993b)

Evaluation

The set of studies described here provide limited support for postulate 14 regarding the validity of leader conceptual development interventions. As suggested by Harman et al. (1993) and by Savell et al. (1993), the Army Leader Development programs that target conceptual skill development in junior

officers are perceived as successful by its participants. However, these evaluations queried officers about the broad scope of Army training programs, not about the efficacy of any particular program, nor do they target specific cognitive skills. The studies by Laskey et al. (1990) and Stewart (1992) are also broad evaluations that suggested that officers moving into and operating within the organization leadership domain defined by Stratified Systems Theory (i.e., Strata III-IV leaders) do not exhibit the kinds of conceptual skills required for leadership in higher organizational (i.e., Strata V) and systems domains (i.e., Strata VI and VII). In addition, two specific programs were not deemed as sufficiently effective in facilitating such skills (Lucas et al., 1988; Stewart & Hicks, 1987).

The bulk of the evaluation data collected in these studies is reaction criteria. The satisfaction of training participants has some influence on their receptivity to the program and their motivation to fully engage and attend to the training requirements (Goldstein, 1991). However, Goldstein (1991) indicated that reaction criteria are generally not correlated highly with learning, behavior, and results criteria. In other words, the trainees' happiness with a program does not mean that real learning has occurred or that on-the-job performance has improved. Also, Goldstein noted (p. 563):

It is important to realize that reaction measures, like any other criteria, should be related to the [training] needs assessment. Thus, it makes no sense to use reaction measures that ask if the trainee is happy (from "Agree" to "Disagree") unless there is some relationship between happiness and course objectives as established by the needs assessment.

Thus, evaluations of current Army Leader Development programs that have as their objective the enhancement of conceptual skills required for senior leadership needs to reflect the use of multiple criteria, including those that document actual gains in skill both in training and in subsequent leadership positions. Such criteria are difficult to collect in military domains; indeed, most training studies conducted in any organizational domain tend to rely almost exclusively on

reaction data (Alliger & Janak, 1989; Goldstein, 1991). However, the costs of senior leader training within the Army are high enough that increased attention needs to be directed at the development of learning, behavior, and results criteria. Indeed, as noted below, such criteria can also be highly useful in assessing the contributions of proposed executive performance requirements and corresponding executive competencies to organizational effectiveness.

Several studies summarized here evaluated prototypic training programs designed to enhance the cognitive skills of potential senior leaders. Most of these studies included learning criteria that demonstrated significant gain in such skills. It is not clear from these studies that the programs they described have been systematically integrated into the curriculum of various military schools. Some suggestions to this effect were offered by Stewart (1994) and Zsambok (1993b). If and when these programs are formally part of the training curriculum for senior leaders, then more substantial evaluations of learning and behavior change can be conducted.

It should be noted the large bulk of Army training programs targeting conceptual skill development in potential senior leaders have not been formally evaluated using the full range of Kirkpatrick's criteria or such evaluations have not been published and made available for public distribution. Thus, it may be that current programs do provide sufficient skill development for such leaders. However, the "broad stroke" studies by Laskey et al. (1990) and Stewart (1992) concluded that potential and actual organizational domain leaders in the Army (i.e., lieutenant colonels and colonels) were insufficiently prepared for the conceptual skills required for more senior positions. This suggests a need to reexamine current programs.

Little attention has been directed to the role of unit assignments and self-development efforts in pushing officers to break their current frames of reference in favor of more complex ones that incorporate a wider span of causal factors. Harman et al. (1993) suggested that junior leaders should be provided the opportunity to practice and expand existing cognitive skills. They apparently are not provided opportunities to create more

complex conceptual maps. Stewart (1992) noted the observation by brigade commanders that their AWC experience provided time for the kind of thoughtful reflection required for frame of reference restructuring, but this effect has not been documented more systematically. Finally, Bryant (1994) did not consider the role of self-development programs in fostering such cognitive restructuring. If, as suggested by Stratified Systems Theory, the construction of new and more complex organizational causal maps is a requisite for effective senior leadership, evaluations of military senior leadership development programs need to include criteria that document such cognitive changes.

CONCEPTUAL COMPLEXITY THEORIES: GENERAL CONCLUSIONS

From the perspective of the research model presented in Figure 3-1 and the postulates offered throughout this chapter, the following general conclusions can be drawn from this empirical review:

- Long-term planning, engagement with the organization's external environment, consensus building, network development, and the construction of an organizational causal map are more important role performance requirements for executive leaders than for lower level leaders. This has been demonstrated in both military and nonmilitary samples.
- The successful accomplishment of these executive leadership requirements, particularly long-term planning and boundary-spanning, is associated with higher organizational performance. This has been demonstrated in nonmilitary samples, but not in military ones.
- Upper level leaders exhibit stronger conceptual skills than lower level leaders. This has been demonstrated in both military and nonmilitary studies.
- The conceptual capabilities of organizational executives is associated with higher executive and organizational

performance. This has been demonstrated in nonmilitary samples, but not military ones.

- Executives display a stronger proclivity for mental model building than lower level leaders. This has been demonstrated in both military and nonmilitary samples, although higher ranking executives have been examined in the nonmilitary studies than in the military ones.
- Proclivity for mental model building has not been associated with successful executive development or with the successful accomplishment of executive performance requirements.
- The Career Path Appreciation Technique has demonstrated acceptable interrater reliabilities, internal consistency, and criterion-related validity. However, its construct validity has not been amply demonstrated.
- Current military senior leader development programs have not yet demonstrated sufficient validity in terms of enhancing high-level conceptual capacities in rising military executives.

These conclusions suggest that a sufficiently clear picture exists regarding the nature of executive work. Performance requirements appear to be comparable in military and nonmilitary leadership domains. These requirements change across organizational levels such that they impose greater and more complex information processing demands on position incumbents. Thus, top executives need to respond to the complexity created by (a) greater requirements of long-term planning, (b) the creation of organizational policies that reflect the conclusions of such planning, and (c) the development of organizational networks that provide information to the executive and facilitate implementation of his or her agenda. Finally, an executive's responses to all of these requirements is grounded in the meaning or sense of understanding (i.e., the frame of reference) he or she derives from reflecting on the multiple causal influences operating on the organization. This development of a frame of reference is the means, then, by which executives add value to their organizations.

One observation from the review in this chapter is that the empirical investigation of executives' mental maps and their influence on organizational action is at a very early stage. The focus has been primarily on developing techniques to assess such maps and associating their structures to environmental dynamics. There is a significant need, particularly in military settings, to examine how an executive frame of reference influences the subsequent process of executive leadership and particularly the accomplishment of executive position requirements. Along these lines, researchers also need to associate the quality of the top management's mental maps to organizational action and performance. Calori et al. (1994) provided some tantalizing evidence of this association in their descriptive study of eight companies. However, the sample was too small for a systematic investigation of what impact executive causal maps have on leadership and organizational processes.

According to Stratified Systems Theory, the utility of an executive frame of reference is based on the requirement for long-term planning. As noted, a significant number of studies in both military and nonmilitary domains have demonstrated that such planning is an important executive position requirement and that (in nonmilitary samples) it does influence organizational performance. However, Stratified Systems Theory specifically postulates a long time horizon—20 years and beyond—for top organizational executives. This premise has been sharply criticized on two grounds. One is that such planning can produce a degree of rigidity in executive thinking that is organizationally dysfunctional, particularly in turbulent environments (Streufert and Swezey, 1986). The other is that the performance demands of executives require a more short-term operational focus in addition to a strategic perspective (Isenberg, 1984). That is, observations of top management work indicated a substantial amount of time spent on short-term projects with little time devoted to the kind of reflective thought required for a 20- to 50-year planning cycle (Mintzberg, 1973, 1975, 1994).

The data from the various studies described in this chapter suggest that the long-term orientation of executives probably extends at most 5-10 years into the future. Markessini et al.

study of civilian executives indicated that the individuals could envision further into the future. Likewise, Lucas and Markessini (1993) demonstrated similar capabilities in Army general officers. However, there is no evidence that such envisioning capability is necessary or even useful to the successful accomplishment of executive work in these domains. Kotter's (1982a, 1982b) data from interviews with top executives indicate that they may include a 5- to 20-year perspective in their strategic agenda (see Figure 3-3). However, this perspective is reflected only in *vague* notions about what financial picture is desired by the executive, what products should be developed, and what "type" of organization is preferred by the executive. The precise utility of these vague notions for the executive and organization remains to be demonstrated.

Recent research has offered two interesting notions about work time span that may resolve the differences between Stratified Systems Theory and other approaches to executive leadership. One notion is that of time span diversity within an executive's strategic portfolio (Calori et al., 1994). Executives do not merely need to have a long-term perspective, they need to balance an array of strategic projects that vary in their requisite time horizons. This is perfectly compatible with the premise of Stratified Systems Theory that executives must have the capability to envision deep into the future. The mix of diverse time horizons adds to the information processing requirements confronting the executive, thereby enhancing the need for high conceptual capacity. The notion of diverse time horizons is also suited to those theories that argue that a significant proportion of executive work lies in short-term operational requirements. As suggested by Calori et al., the diversity of an executive's strategic portfolio appears to be more directly linked to organizational performance than the furthest horizon of executive planning.

The second notion, offered by Thomas and Greenberger (1995) and Ringle and Savickas (1983), is that the 20+-year time span proposed by Stratified Systems Theory does not necessarily have to mean a *future* orientation of that duration. That is, the time span incorporated into executive thinking may reflect a retrospective as well as a prospective focus of the organization.

and its environment. Thomas and Greenberger suggested, for example, that an executive's 20-year perspective may include the previous 10 years as well as the future 10 years. Zaccaro et al. (1995) argued for a similar notion with respect to leader visions. They suggested that an effective vision includes not only information about the organization and its environment at some future point in time, but also an understanding of how the organization got to its present state and how the future desired for the organization by its executive leaders relates to its past. Such long time spans fit the high-level executive performance requirements and conceptual skills advocated by Stratified Systems Theory. However, these time horizons are not so far in the future as to be impractical for strategic considerations.

Thomas and Greenberger (1995) argued that issues related to leadership and time orientation have been largely unexplored. They provided a model that includes time orientation as an important component of leadership and organizational performance. Given its centrality in Stratified Systems Theory, additional research needs to be directed at how time orientation is operationalized in executive work. The present review suggests the following key issues: (a) the influence of time diversity versus extent of horizon on executive leadership and organizational performance; (b) time span as reflecting a past, present, and future orientation; and (c) the relative contribution to the explanation of executive work made by different definitions of time span (e.g., task time span, planning time span; envisioning horizon; Markessini et al., 1994).

A recurring theme in this empirical review is that in military-based research there has been little or no attempt to associate successful accomplishment of executive performance requirements to executive and organizational performance. Stratified Systems Theory argues that long-term planning, boundary-spanning, network development, consensus building, and, particularly, causal map development, are the means by which senior executives add value to their constituent organizations. These requirements are then used to propose key leadership competencies that facilitate their accomplishment. However, if there is no empirical evidence associating executive

role or performance requirements to organizational effectiveness, then there is not a sufficient basis for validating the efficacy of certain prescribed competencies. The necessity for this evidence is the basic premise of the research model in Figure 3-1. Also, if executive competencies are not validated, or are misspecified, then the construction of executive leader development programs that target these competencies may be misdirected and wasted effort in the end. The key to validation, then, lies in defining and operationalizing the criteria for successful executive leadership in the military and using these criteria to validate the models of such leadership that have driven the corresponding development of senior leadership training programs. This issue is reexamined in the last chapter of this report with some discussion of fundamental differences between military and nonmilitary leadership, along with some recommendations offered for the kinds of criteria that may be appropriate for military organizations.

Chapter 4

Behavioral Complexity Models: Conceptual Review and Evaluation

INTRODUCTION: SOCIAL AND BEHAVIORAL COMPLEXITY

The central focus of the previous two chapters was on the information-processing demands confronting the organizational executive and the requisite need for high-level conceptual skills. This chapter and the next one focus on the level of *social* demands that must be considered by the executive when formulating action, and the resulting need for the executive to have the capacity to display *behavioral complexity*. This capacity refers to the executive's ability to accomplish multiple organizational roles that call for very different, and sometimes competing, behavior patterns. Cognitive capacities are useful to the executive in discerning a meaningful and integrated pattern from a complex and ambiguous information array. The product is presumably a workable plan of action for the organization as a whole or for one of its components. Because the problem situation confronting the executive is complex, the plan and its implementation should be correspondingly complex. Social capacities facilitate the implementation of such plans within a complex social environment.

Three important points should be made regarding behavioral complexity and executive leadership. First, cognitive and behavioral complexity are not independent. Theories of social intelligence have grounded the ability to display diverse and situationally appropriate social responses in the development of elaborated cognitive representations, or schemas, of critical components that comprise the social environment (Cantor & Kihlstrom, 1987; Zaccaro, Gilbert, Thor, & Mumford, 1991). Conceptual capacities of the sort described in Chapter 2 facilitate the development of integrated and flexible social schemas. Second, one might view cognitive and behavioral complexity as

contributing respectively to the direction setting and operational aspects of strategic leadership (Gardner & Schermerhorn, 1992). Cognitive complexity facilitates the development of a viable and integrated vision or strategy for the organization while behavioral complexity contributes to its operationalization within the organizational and external environment. Both are necessary and neither is sufficient for effective executive leadership. Third, the need for behavioral complexity on the part of the executive is driven by the existence of social complexity in his or her operating environment. This is an application of the law of requisite variety, used by Jacobs and Jaques (1987; Jacobs & Lewis, 1992) to explain the necessity for cognitive complexity. The existence of social complexity creates the need for behavioral complexity.

What factors create social complexity for the organizational executive? One factor is related to the performance requirement that executives coordinate and supervise the activities of different departments within the organization. Organizations contain multiple subsystems that can be distinguished by their functions (Katz & Kahn, 1978). As suggested by Katz and Kahn, functions can be described in terms of input processes (the acquisition of organizational resources), throughput processes (or the transformation of raw materials and resources into the organizational products), and output processes (the distribution of finished products to organizational consumers). For example, production subsystems in the organization are primarily concerned with throughput processes, while sales is oriented toward output. Human resource departments focus on input processes, while other subsystems within the organization can be termed boundary-spanning systems that focus on managing and acquiring information about the environment. While the latter is inherently part of the senior leader's role (Katz & Kahn, 1978), some organizational subsystems are established with specialized boundary-spanning roles (e.g., marketing departments). The various constituencies associated with input, throughput, and output processes will often have different and conflicting demands of the senior leader and accordingly will require different behavioral responses.

The functional diversity just described represents the social complexity of a single organization. For corporate executives (i.e., Strata VI and VII leaders, according to Jacobs & Jaques, 1987), this diversity is exacerbated by the existence of more than one company under the top executive's purview. Thus, just as different functional departments within an organization present an executive with conflicting social (and therefore behavioral) demands, different organizations present a diversity of cultures, needs, and requirements for him or her to consider.

This is a macro-analysis of organizational social complexity. A micro-analysis reveals similar social diversity. Along these lines, Bentz (1987) argues that executive success requires an ability to handle the degree of "scope/scale" that exists in large organizations. Scope refers to the number of functional units under one's control. The influence of scope on social complexity was just described. Scale refers to the internal complexity and diversity that exists "within and across units managed, within and across varieties of personal relations, and across decisions made" (Bentz, 1987, pp. 1-2). That is, functional units, and individuals within them, are not homogeneous in terms of their needs, demands, temperament, and social requirements. The same is true of the management team that reports to the top executive. This interpersonal diversity adds to the social complexity executives need to consider in formulating action (Zaccaro, Gilbert et al., 1991).

Another characteristic of executive social complexity that requires behavioral complexity is the boundary-spanning role of top organizational leadership. Leaders engage in a number of different boundary-spanning functions (Gilmore, 1982). At one level, boundary-spanning means managing the interactions and representations of the leader's subordinates to higher organizational authorities. Thus, leaders act as intermediaries between their subordinates and supervisors. For senior leaders, these can entail managing the interactions between the organization as a whole and a board of directors. Quite often, the demands made by each constituency can come into conflict, and therefore require a delicate balancing act of conflicting behavioral expectations (Tsui, 1984a, 1984b). Also, senior

leaders are typically required by their role to manage the boundary between their constituent organization and an often complex and dynamic environment. This may involve interactions with political constituencies and regulators, consumers of the organizational products, sources of organizational material and financial resources, stockholders, and local community leaders. Each of these constituencies requires a range of very different actions from the leader.

Still another characteristic of executive social complexity is the requirement that senior organizational leaders balance competing *macro-level* demands from both the organization and its environment (Hart & Quinn, 1993; Quinn, 1984). Senior leaders are often required to promote organizational adaptation and innovation in response to dynamic environmental conditions. However, the establishment of an organizational culture that favors innovation and change can work against the order and predictability required for successful collective action (Weick, 1979). Thus senior leaders need to create an organization that is both flexible and predictable, one that is adaptive to environmental change, yet has the stability necessary for organized responses from large numbers of individual members (Jonas, Fry, & Srivastva, 1990). This paradox in turn produces several competing social role requirements of the senior leader (Hart & Quinn, 1993).

The existence of social complexity in the operating environment of organizational executives means that successful leadership entails the effective accomplishment of multiple social roles and corresponding behavior patterns. This premise is the basis for three conceptual models described in this chapter. The first model to be described is Mintzberg's (1973, 1975) classification of managerial roles. This work does not have the framework of a formal model or theory. Yet, it is important because it delineates the different behavior patterns required of senior leaders; therefore, it serves as a basis for subsequent research on managerial behavioral complexity. The other two models, Tsui's Multiple Constituency Model (Tsui, 1984a, 1984b) and Quinn's Competing Values Framework (Quinn, 1984, 1988; Hooijberg & Quinn, 1992), are more explicit about the need for

executives to balance *conflicting* demands and behavior patterns. As with the other conceptual perspectives described in this report, these models are examined through the four themes in the evaluative framework (nature of executive performance requirements, requisite executive skills, measurement, and leader development).

THE NATURE OF ORGANIZATIONAL LEADERSHIP

Mintzberg's Managerial Roles

On the nature of executive planning. The image of the executive leader that is suggested by the conceptual complexity theories is that of the reflective, long-term planner. This is an image that Mintzberg (1973, 1975) explicitly rejects. He notes, "The traditional literature notwithstanding, the job of managing does not breed reflective planners; the manager is a real time responder to stimuli, an individual who is conditioned by his job to prefer live to delayed action" (1975, p. 51). According to Mintzberg, executives make decisions relatively quickly, often without the aide of extensive cost/benefits analyses. At times, such decisions are made on the basis of trust for the proposer of the project rather than on any systematic analysis of the project's strengths and weaknesses in accordance with organizational directions.

Executive work is characterized as action-oriented and filled with many different, brief, and discontinuous tasks. Mintzberg (1973, 1975) calculated that among the chief executives he observed, half of their activities consumed less than 9 minutes of time, with only 10% lasting longer than an hour. The range of tasks accomplished by the manager reflected a variety of very different managerial roles that will be described shortly. While Stratified Systems Theory argues for some of the same top executive roles, two differences are apparent. First, executive work is directed equally inward and outward with respect to the organization. Stratified Systems Theory places a bit more emphasis on the external systemic focus of top management. Mintzberg's role set certainly includes this focus; however,

several of the roles also reflect day-to-day operational activities and direct management. Indeed, Mintzberg's analysis of the time executives spent with various constituencies was almost evenly split between external (44%) and internal (48%) groups (7% of their time was spent with directors and trustees). A second nuance of difference between the two perspectives is the one alluded to earlier. While Stratified Systems Theory places a disproportionate emphasis on planning and strategy making, Mintzberg argues that all of the different managerial roles are equally important to successful performance. This suggests that the primary emphasis of Stratified Systems Theory on conceptual capacity as the most critical senior leadership skill may be misplaced—an argument pressed by others as well (e.g., Boal & Whitehead, 1992).

This is not to say that Mintzberg's conceptual framework rejects planning as part of executive leadership, nor the need for an integrated understanding of the organization and its environment (i.e., the "frame of reference" espoused by Stratified Systems Theory). In a recent contribution to his framework, Mintzberg (1994) provides an interesting perspective of executive planning. He defines planning as a "formalized procedure to produce articulated result, in the form of an integrated system of decisions" (p. 31). Planners are individuals "without line (operating) responsibilities and so with time on their hands to worry about the future of the organization" (p. 32). What then are managers? Mintzberg (1994, p. 368) notes:

Effective managers . . . have their fingers on the pulse of the organization and its external context through their privileged access to soft data. But as described in the planning dilemma, they lack the time and inclination to study the hard data. The nature of their work favors action over reflection, quick response over long term consideration, the oral over the written, getting information rapidly over getting it right. Someone has to take the time to study the hard facts—shifts in consumer buying habits, realignments of competitive positions, changes in product mixes, and so on—and ensure that

their consequences are fed into the strategy making process.

Mintzberg nominated the planner for the role of providing the data analysis and information interpretation needed for managerial decisionmaking. These are individuals who take the long-term perspective, consider this perspective in the context of their analysis, form the “picture,” and then provide their interpretation to the senior manager. It is the planner who does the long-range reflection and analysis, while the manager makes the necessary strategic decision. This does not absolve the executive from needing or using a long-time perspective; but it does suggest that such perspective is more typically the province of the executive’s (planning) staff, while his or her typical focus may be more short term.

Mintzberg's integrated managerial role set. Mintzberg (1973, 1975) used intensive structured observation methods to record and analyze the work of five CEOs. His data indicated 10 managerial roles subsumed under three headings. These roles are indicated in Table 4-1. The first role category reflects *interpersonal roles*. These roles emerge from the formal and position authority of the executive. They include activities related to both symbolic representation of the organization to outside constituencies (*figurehead*), and interaction with a myriad of external constituencies that become potential sources of information critical to organizational functioning (*liaison*). Interpersonal roles also include the hiring, training, and motivation of subordinates and staff (*leader*). These roles, as a set, provide the social contacts (and context) for *informational roles*. The latter role set reflects activities centered around the acquisition and dissemination of information. Thus, the first role in this set involves the acquisition of information from sources within and outside the organization, as well as from contacts developed in the manager's liaison role (*monitor*). This information is then distributed to key organizational personnel; the manager also facilitates communication among disparate subordinate units (*disseminator*). Finally, the senior manager is a source of information to individuals outside the organization or at least outside of his or her organizational unit (*spokesman*).

Table 4-1. Mintzberg's Managerial Roles

Interpersonal Roles	
Figurehead	Performs duties of a ceremonial or symbolic nature
Leader	Performs duties related to the hiring, training, and motivating of subordinates
Liaison	Makes contacts and develops networks outside vertical chain of command.
Informational Roles	
Monitor	Gather information regarding organizational effectiveness from internal and external environments.
Disseminator	Communicate critical information to subordinates and other members of the organization.
Spokesman	Communicate information about the organization to constituencies outside of the organization.
Decisional Roles	
Entrepreneur	Initiate projects and strategies that adapt the organization to changing environmental conditions.
Disturbance Handler	Provides appropriate responses in the face of unexpected events and crises.
Resource Allocator	Allocates resources to various organizational units in accordance with managerial decisions.
Negotiator	Represents organizational units in negotiations; facilitates negotiations with and among organizational subunits.

Adapted from text in Mintzberg (1975, pp. 54-59).

The purpose here is to inform constituencies that are critical to the input and output processes of the organization (e.g., suppliers, stockholders).

Mintzberg (1973, 1975) noted in his observations of CEOs that each one played a central part of organizational decisionmaking. Accordingly, he specified four *decisional roles*. The first such role involves the initiation and encouragement of new ideas and innovations that facilitate organizational adaptation to changing environmental conditions (*entrepreneur*). These role behaviors more often than not reflect proactive action. However, a significant portion of managerial activity is in response to crises and unexpected pressures (*disturbance handler*). Also, when making decisions, managers are often distributing organizational resources (including their time) according to established strategic priorities (*resource allocator*). Finally, because senior managers head several subordinate units and need to interact with multiple constituencies associated with the organization, they are often required to arbitrate or mediate various disputes and bargain on behalf of the organization (*negotiator*).

Taken together, these 10 roles emphasize the two central aspects of senior managerial work mentioned frequently in this report: boundary spanning and organizational maintenance. Several of Mintzberg's roles reflect the manager's need to interact with external individuals and groups (e.g., figurehead, liaison, spokesperson, and negotiator). Other roles emphasize orienting the organization with respect to its environment, either by keeping critical subordinate units informed of environmental conditions (e.g., disseminator) or by altering organizational priorities in response to changes in these conditions (e.g., *entrepreneur*). The remaining roles refer to activities centered on maintaining stability in organizational functioning. Thus, Mintzberg's roles reflect leadership functions prescribed by a number of early theorists of organizational leadership (e.g., Barnard, 1938; Hemphill, 1950; Katz & Kahn, 1966, 1978; Kretch & Crutchfield, 1948; Selznick, 1957).

All of Mintzberg's roles are considered critical for effective senior leadership. Indeed, Mintzberg argues that these roles

form an integrated whole or gestalt. Interpersonal roles are used to build the contacts and sources that allow the successful accomplishment of informational roles. Informational roles are critical in making and implementing organizational decisions. Successful leadership requires, then, the ability to accomplish all 10 roles. Because each role presumably reflects a different constellation of behaviors, this means that executives are required to display many different behavior patterns according to the requirements of particular managerial tasks. Furthermore, given the rapid pace of executive management work described by Mintzberg, these leaders need the ability to shift quickly from one role (and behavior pattern) to the next.

Mintzberg does not specify how the number or nature of managerial roles change across organizational levels. Because his classification emerged from his observations of CEOs, the assumption is that his 10 roles are reflective of executive-level leadership. One may speculate that (a) the contextual complexity of accomplishing each role changes qualitatively at higher organizational levels, or (b) some of the roles (e.g., entrepreneur) become less important and perhaps even nonexistent at lower levels. These must remain speculations because Mintzberg (1973, 1975) does not explicitly address differences by level in managerial functioning. However, he does argue that the amount of time devoted to each role varies by managerial job function. For example, sales managers spent more time on interpersonal roles, production managers on decisional roles, and staff managers on informational roles, although Mintzberg argued that all three types of managers still completed elements of all three central leadership roles.

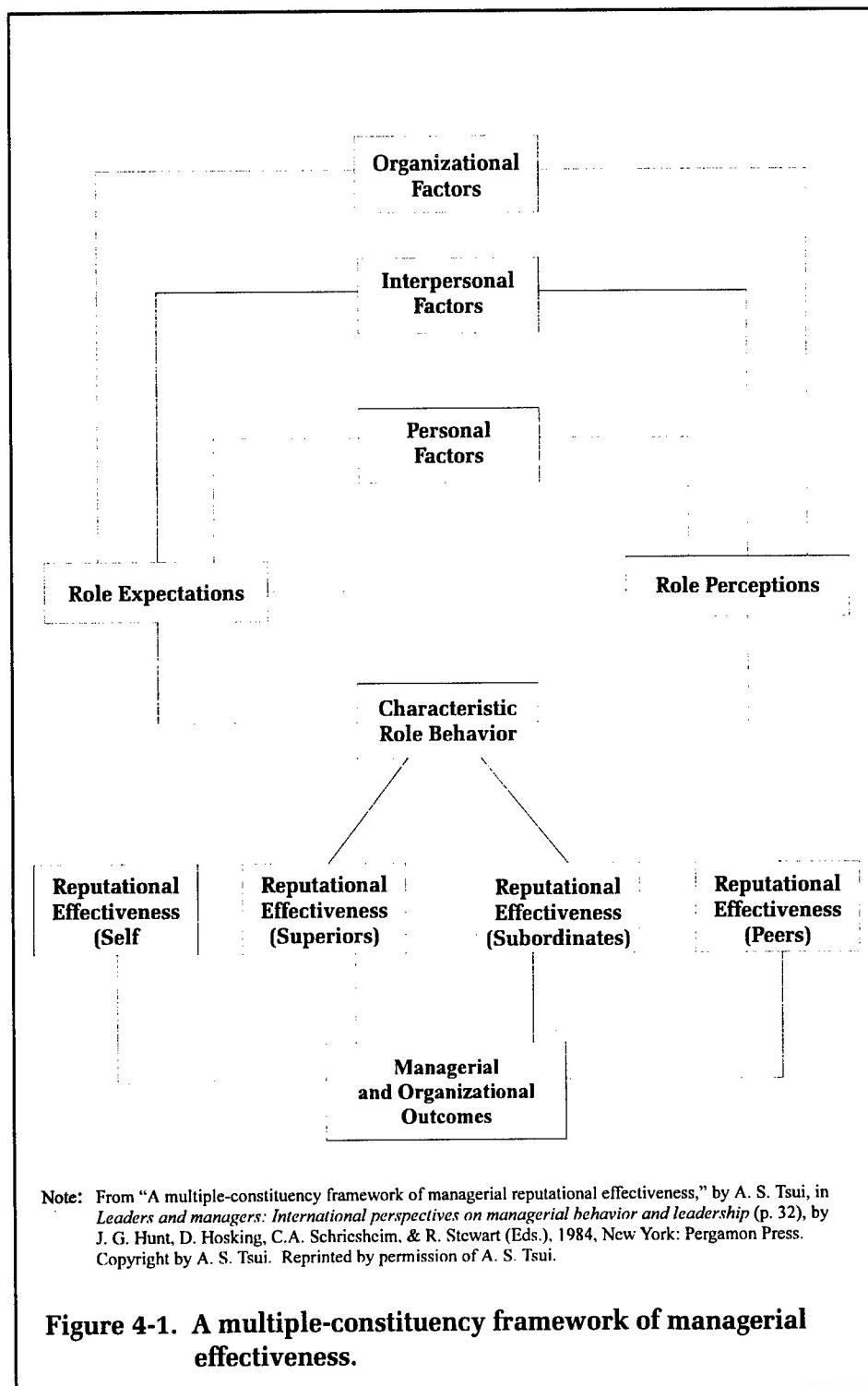
Mintzberg's classification of senior management roles does not assume conflict or incongruence among any of the behavioral roles. Indeed, the roles are presumed to be integrated into a coherent gestalt. For example, he notes, "No role can be pulled out of the framework and the job left intact" (1975, p. 59). Other approaches to behavioral complexity stress the incongruent quality of required senior leadership roles and the need for senior leaders to balance a number of conflicting demands.

What follows are two leadership models based on this assumption.

Tsui's Multiple Constituency Framework

Tsui (1984a, 1984b) argued that leader success, and by extension organizational effectiveness, was a function of the leader's reputational effectiveness. She defined reputation as "the effectiveness as perceived from the perspective of the individual or a specific group of individuals who are satisfied with the job behavior and activities exhibited by the manager being evaluated" (Tsui, 1984a, p. 65). Each leader is embedded within a role set that contains multiple role senders (Katz & Kahn, 1978). Role senders include subordinates, peers, and superiors within the organization, as well as constituency groups outside the organization. These role senders are likely to have separate expectations of the leader that reflect their different functional specializations, work objectives, personal and group goals, and personal career aspirations. When these role expectations diverge significantly, then a leader who is in the middle of this role set will receive different, often conflicting role information. For example, Tsui argues that the behaviors required by the leader's superiors are likely to be different from, and indeed may be negatively related to, those behaviors prescribed by the leader's peers or subordinates. However, she argues that to be perceived as effective by multiple relevant constituencies, the leader needs to meet the different role requirements of all key role senders. Thus, for the leader, success is likely to depend upon her or him maintaining a delicate balance of conflicting role behaviors.

Tsui's (1984b) multiple-constituency framework of managerial effectiveness is shown in Figure 4-1. Managerial and organizational effectiveness is determined jointly by the reputational effectiveness established with superiors, subordinates, peers, as well as reflecting the manager's own expectations and role priorities. Reputational effectiveness is determined by the degree to which managerial role behavior is perceived as successfully reflecting the confluence of behaviors expected by separate organizational constituencies. Tsui argues



that organizational, interpersonal, and personal factors influence the nature of managerial role sending. Relevant organizational factors include authority structure, organizational strategy, degree of vertical and horizontal differentiation, and reward structures. Interpersonal factors include the degree of credibility and political power possessed both by different role senders and by the focal manager. Role senders that have high credibility and clout will more likely command the attention of the manager while managers with high credibility and power will be able shape the role expectations of others more effectively. Personal factors include the power motives or influence needs of the manager and role senders, as well as the level of aspirations and expectations established by both the manager and role senders.

Tsui (1984a) incorporated Mintzberg's role classification into her framework by proposing that different constituencies will vary in their expected frequencies of each of the role behaviors. She argued, for example, that the spokesperson and liaison roles were more instrumental for reputational effectiveness perceived by peers than by subordinates or superiors. This was because a manager's peers relied heavily on information exchange to coordinate their own work efforts. Tsui suggested that subordinates emphasized the leader, resource allocation, and environmental monitoring roles. Such activities help structure and give meaning to their own work. Finally, a manager's superiors were more likely to favor entrepreneurial roles. Note that an effective manager is required to be responsive to all of these constituencies with their differing role expectations. Accordingly, Tsui proposed that a manager's perceptions of his or her own reputation depended upon the successful accomplishment of all of these roles.

Tsui's framework supports the premise that successful leaders need to display a complex array of different behaviors. However, Tsui does not clearly specify how role expectations from multiple constituencies vary as one ascends organizational levels. That is, Tsui does not indicate how junior leaders differ from senior leaders in determinants of reputational effectiveness. She does suggest that managers in boundary-spanning roles need to respond not only to superior, peer, and subordinate role

requirements, but also to the demands of constituencies outside the organization. Because senior leaders are more likely to be engaged in boundary spanning than junior leaders, they will need to account for the role requirements of external groups more so than their junior counterparts. Also, at higher organizational levels, leaders are increasingly likely to have multiple subordinate groups reflecting different job functions reporting to them. Each subordinate group could convey substantially different role expectations. Thus, executive leaders will have to balance a more complex constellation of subordinate demands than junior leaders who may have only one subordinate group to account for. Thus, while Tsui's framework does not explicitly propose differences across organizational levels, it does support the premise that social and behavioral complexity is greater for senior leaders than junior leaders.

Quinn's Competing Values Framework

While Tsui emphasizes the need to balance different role demands from multiple constituencies, the notion of conflict is not inevitable. A politically skillful or powerful leader can reconcile competing role requirements to form a coherent and consistent whole. For such a leader, behavioral requirements become consistent across different organizational groups.

Quinn's Competing Values Framework (Hart & Quinn, 1993; Hooijberg & Quinn, 1992; Quinn, 1984, 1988), however, argues that conflicting values, and therefore opposing behavioral requirements, are inherent in the nature of organizational senior leadership. Furthermore, Quinn argues that opposing values are of equal value to overall leader effectiveness; therefore, leader effectiveness entails the mastery of countervailing behavior patterns.

Quinn's leadership values are derived from a model of organizational effectiveness that incorporates three sets of competing values (Quinn & Rohrbaugh, 1981; Rohrbaugh, 1981). The first is flexibility versus stability. Organizations are expected to be flexible and adaptive in response to environmental change as well as stable and predictable in their operating procedures. Second, organizational effectiveness can

be described in terms of an emphasis on the well-being of individual members versus the well-being of the organization as a whole. The former reflects a more internal focus, while the latter reflects the organization with respect to its external environment. Finally, values differ in terms of a focus on process versus outcomes.

As applied to organizational leadership, these dimensions produce four sets of competing behavioral role requirements (Quinn, 1984). These roles are summarized in Table 4-2 along with requisite behavioral patterns. The dimensions of flexibility/predictability and internal/external focus produce four quadrants. The first, reflecting flexibility and an internal focus, indicates that leaders are required to develop and nurture subordinates and promote open interactions among them. Thus, leaders must act in the roles of mentor and facilitator, respectively. These roles compete with roles defined in the opposing quadrant of predictability and an external focus. Here, leaders need to initiate action and provide direction to subordinates. These actions, reflecting the producer and director roles, conflict with facilitator and mentoring roles, respectively, because the need for task-oriented actions may often be incompatible with the requirement to develop subordinates and promote a harmonious work environment.

The quadrant reflecting flexibility and an external focus suggests that a leader needs to be creative in developing new ideas and products in response to environmental changes. Further, the leader needs to attend to resource acquisition and particularly to organizational growth in this capacity. These leader roles are defined as innovator and broker, respectively. They compete with roles that reflect predictability and an internal focus. The coordinator role (competing with the innovator role) is necessary to maintain organizational stability and control of operating procedures. Innovation means disruption and change to these procedures. The role of monitor reflects information acquisition and distribution within the organization; this competes with the broker role because in the latter role leaders are acquiring information outside of the organization.

Table 4-2. Quinn's Competing Values Model of Leadership

	Flexibility/Internal			Predictability/External
Mentor:	<i>Shows Consideration:</i> This leader is aware of individual needs, actively listens, is fair and objective, supports legitimate requests; attempts to facilitate individual development.	versus	Director:	<i>Provides Structure:</i> This leader engages in goal setting and role clarification, sets objectives, monitors progress, provides feedback, establishes clear expectations.
Facilitator:	<i>Facilitates Interaction:</i> This leader is interpersonally skilled, facilitates group process, encourages expression, seeks consensus, facilitates compromise.	versus	Producer:	<i>Initiates Action:</i> This leader is concerned about the task, stimulates appropriate performance in group members and others necessary to task completion.
				Predictability/Internal
Innovator:	<i>Envisions Change:</i> This leader seeks new opportunities, encourages and considers new ideas, is tolerant of ambiguity and risk.	versus	Coordinator:	<i>Maintains Structure:</i> This leader maintains the stability and flow of the work by scheduling, coordinating, problem solving, and seeing that rules, standards, and deadlines are understood and met.
Broker:	<i>Acquires Resources:</i> This leader develops interpersonal contacts, monitors the environment, amasses power and influence, maintains the external image of the unit, and secures resources.	versus	Monitor:	<i>Provides Information:</i> This leader deeply comprehends the task of the group, constantly collects and distributes information, facilitates the development of shared meanings, develops a group sense of continuity and safety.

Note: Adapted from Quinn, 1984, pp. 20-21, and Hooijberg & Quinn, 1992, p. 164.

Hooijberg and Quinn (1992) argue that organizational leadership requires significant behavioral complexity. Effective leaders will enact more of the roles in the Competing Values Framework than ineffective leaders. Also, effective leaders will balance these roles such that one role is not emphasized disproportionately. Less effective leaders will either not display any of the aforementioned roles or display one role more than the others. The enactment of multiple roles requires significant skill by the leader because each role has a countervailing one. Thus, for example, leaders need to innovative and adaptive with respect to the organization's operating environment, while at the same time maintaining stability and structure within the organization. Also, they must develop their subordinates by creating a nurturing environment, while also being task-focused and structuring in order to complete production goals in a timely manner. Thus, behavioral complexity is defined as the skillful balancing of multiple leadership roles in accordance with organizational requirements.

Quinn does not explicitly specify differences in role requirements between junior and senior leaders. However, the Competing Values Framework is based on an integration of organizational effectiveness theories, suggesting that it applies to senior leaders. Indeed, Hart and Quinn (1993) specified the aforementioned roles as "executive roles" and call their approach a model of executive leadership. Nonetheless, one may speculate that junior leaders are likely to enact one or a few of the roles, perhaps those from one quadrant. For example, lower level leaders may be focused on providing direction and initiating action for subordinates. They may otherwise be concerned with monitoring and coordinating functions, or with subordinate development. Lower level leadership, however, does not exclude the need to enact conflicting roles. According to Jacobs and Jaques (1987), leaders at Strata III (production domain) often need to provide direction and nurture subordinate development. Thus, a degree of behavioral complexity may still be required at lower organizational levels. A key difference may be that senior leaders have a wider array of competing roles to enact.

Quinn (1988) completed research with managers at different organizational levels that suggested varying needs to accomplish all of the aforementioned roles in order to be effective. He clustered effective managers at several levels and developed a profile of each one. At the middle organizational levels, managers could be effective by emphasizing either (a) the roles of mentor, facilitator, innovator, and broker (called open adaptors); or (b) the roles of director, producer, coordinator, and monitor (called aggressive achievers). Note that managerial effectiveness can be attained without necessarily displaying competing values. At a higher organizational level, effective managers begin to display competing values, although not all four sets are displayed. Thus, Quinn identified the committed intensives (exhibited high scores on the roles of innovator, producer, monitor, and facilitator), peaceful team builders (exhibited high scores on all roles but broker and producer), and conceptual planners (exhibited high scores on all roles but monitor and coordinator). At the top of the organization (i.e., top executives), effective managers were ones who displayed high scores on all roles (called master managers). While this is an empirically driven differentiation, taken together these patterns suggest differences across organizational levels in the need to adopt and balance the full range of competing roles.

REQUISITE LEADER CHARACTERISTICS

While a number of studies have examined the multi-role and behavioral requirements of executive leadership, few have investigated the leader skills and characteristics that promote behavioral complexity. One possible explanation for this relative inattention is that as the behavioral requirements of senior leadership multiply, it becomes necessary to posit a correspondingly expanding list of skills that facilitate each behavior pattern. For example, if one begins with Baehr's (1992) comprehensive list of 16 leader activities, then one needs to specify the leader knowledge, skills, abilities, and other dispositional orientations that lead to the effective display of each activity pattern. For example, the leader qualities that produce successful objective setting and planning are likely to be

different from those facilitating effective team building. Likewise, each of Mintzberg's 10 managerial roles will generally emerge from very different constellations of leader qualities. Also, because leader behaviors are likely to be multiply determined, a list of influential variables producing behavioral complexity can be significantly greater than the number of role behaviors required of the leader.

Nonetheless, Mintzberg (1975, p. 61) specified several managerial skills linked to his role classification. These were:

- developing peer relations (networking)
- carrying out negotiations
- motivating subordinates
- resolving conflicts
- establishing information networks and disseminating information
- making decisions under ambiguity
- allocating resources (including one's own time)
- introspective skills

These behaviors and the abilities that foster them promote the accomplishment of the managerial role set offered by Mintzberg. They fit into the categories of interpersonal and conceptual skills that are the basis of most leader skill typologies (Katz, 1955; Mann, 1965; Yukl, 1994). Most of the these skills apply to managers at most, if not all organizational levels. Thus, they are not informative in terms of the skills that differentiate effective senior from effective junior managers.

Tsui (1984b) proposed that high reputational effectiveness across multiple constituencies is associated with strong power motives and influence needs in focal managers. Managers with high power motivation are likely to be more successful in shaping the expectations of different constituencies to make them more congruent with their own. Also, a high need to influence others is associated with a desire to work hard on behalf of others (McClelland, 1961). Accordingly, managers with

Table 4-3. Trait Clusters for Each of the Leader Roles in Quinn's Competing Values Framework

1. Mentor	<i>Caring, Empathetic:</i> This leader is concerned about individual people, is alert to their problems and needs, sees individuals as valued resources.
2. Facilitator	<i>Process-Oriented, Diplomatic, Tactful:</i> This leader has good interpersonal skills; facilitates group interaction, cooperation, and cohesion.
3. Monitor	<i>Technically Expert, Well-Prepared:</i> This leader is well-informed, knowledgeable as to the work of the group, competent, highly expert in technical matters.
4. Coordinator	<i>Dependable, Reliable:</i> This leader is consistent, predictable, seeks to maintain continuity and equilibrium in the unit.
5. Director	<i>Decisive, Directive:</i> This leader is conclusive and determinative, can rapidly plan work and provide direction.
6. Producer	<i>Task-Oriented, Work-Focused:</i> This leader is action-oriented, highly generative, invests great energy, and derives much satisfaction from productive work.
7. Broker	<i>Politically Astute, Resource-Oriented:</i> This leader is very aware and sensitive to external conditions, particularly to those related to legitimacy, influence, and resource acquisition.
8. Innovator	<i>Creative, Clever:</i> This leader is innovative, conceptually skilled, seeks unique opportunities and improvements.

Adapted from Quinn, 1984, pp. 20-21, and Hooijberg & Quinn, 1992, p. 164.

such needs are likely to be more committed to addressing the role expectations of multiple and different organizational constituencies. Tsui does not adopt the premise that power and influence needs become more or less important at different organizational levels.

Quinn (1984) proposed trait clusters for each of the roles in his Competing Values Framework. Table 4-3 indicates these clusters aggregated by leader roles. Each role is defined as emerging from qualitatively different sets of leader characteristics. Thus, this model presumes that managers with high behavioral complexity possess all of these characteristics. This premise is interesting in that it appears to suggest competing dispositional orientations in the same manager. For example, the innovator and broker roles are proposed as requiring "an inventive, risk-taking style" (Quinn, 1984, p. 19). However, the competing roles of coordinator and monitor suggest a more conservative and cautious style. Likewise, the producer and director roles are linked to a task-driven style while the competing roles of facilitator and mentor suggest a person-oriented and relaxed work style. Thus, leader effectiveness appears to be grounded in the balancing of different "dispositional" orientations.

The focus on different behavioral styles forces an emphasis on multiple trait clusters and ignores the substance of leader behavioral complexity. Day and Lord (1988) suggest that rather than focusing narrowly on leader styles, theories of executive leadership need to include such factors as analytical, perceptual, and conceptual leader abilities. These characteristics can facilitate the emergence of integrated and complex behavior patterns. Accordingly, Hooijberg and Quinn (1992) argue that cognitive complexity is a determining condition for behavioral complexity. They suggest that cognitive complexity helps managers understand the four sets of leader roles with their competing underlying values and philosophies. Further, high-level cognitive skills promote the integration of these competing skills.

Here, then, is a basis for behavioral complexity—effective executives need the cognitive skills to understand the requisite complex behavior patterns. Streufert and Swezey (1986) noted that successful managers displayed flexible integrative complexity in the leadership domain, meaning that they differentiated among alternate leadership activities and integrated them into a coherent and flexible model. If one

accepts the premise that the need to balance competing role and behavioral requirements is stronger at higher organizational levels, then, as suggested by Streufert and Swezey, flexible integrative complexity becomes more important for executives.

Zaccaro, Gilbert et al. (1991) suggested that social intelligence may also be instrumental in the display of behavioral complexity. They defined social intelligence as an ability to perceive critical situational contingencies and enact the leader roles most appropriate for each situation. They also tied this ability to effective leadership. Social intelligence includes skills related to social perceptiveness and behavioral flexibility. Behavioral flexibility has two determining components, a wide response repertoire and the cognitive capacity to adjust and match behaviors to particular social demands (Paulus & Martin, 1988). Leaders who can enact different leader roles are likely to possess a broad behavioral repertoire. However, this repertoire is not helpful unless leaders can also match different role behaviors with situational role prescriptions. This is accomplished through elaborated cognitive representations that effectively encode significant elements of the executive's social world and provide information about the most appropriate responses across a variety of social situations (Zaccaro, Gilbert et al., 1991). Note that the development of these cognitive frameworks requires the kinds of conceptual skills proposed by the conceptual complexity theories of executive leadership.

In sum, the specification of executive roles and their social complexity has been linked to a delineation of requisite managerial skills. There is less attention, though, given to managerial capabilities that specifically lead to an ability to handle competing role responsibilities. Hooijberg and Quinn (1992) linked the cognitive complexity approaches to executive leadership with their own approach by arguing that strong conceptual skills promote behavioral complexity. This viewpoint is supported by theories of social intelligence that argue that elaborate cognitive models of a complex social domain facilitate appropriate social behavior. This suggests that executive leadership may best be explained by a combination of the cognitive and behavior complexity perspectives. Indeed, this is a

significant basis for the integrated executive leadership model that is proposed in the final section of this report (Chapter 10).

MEASUREMENT ISSUES

The research on behavioral complexity and the nature of senior leadership suggests two key measurement issues. The first is the empirical assessment of roles and activity patterns displayed by senior leaders. Several psychometrically sound inventories of managerial jobs have been developed and applied to the study of executive leadership. These include the Work Analysis Forms (Stogdill & Shartle, 1955), the Executive Position Description Questionnaire (Hemphill, 1960), the Leader Behavior Description Questionnaire (Form XII, Stogdill, 1963), the Management Position Description Questionnaire (Tornow & Pinto, 1976), the Management Practices Survey (Yukl, Wall, & Lepsinger, 1990), the Leadership Observation System (Luthans & Lockwood, 1984), and the Management and Professional Job Functions Inventory (Baehr, 1992). These inventories provide a relatively common description of the range of senior leadership behavioral requirements (see also Yukl, 1989, p. 95). Behavioral complexity can be assessed by observing the degree to which respondents display high scores on multiple behavioral categories (e.g., McCall & Segrist, 1980; Morse & Wagner, 1978; Pavett & Lau, 1983).

This approach, however, does not directly assess an individual's ability to effectively enact competing or conflicting roles. As noted above, Tsui (1984a) and Hooijberg and Quinn (1992) specified behavioral complexity as the balancing and display of conflicting behavioral patterns. A measurement technique based on such a definition would be closer to the conceptual meaning of behavioral complexity than those based on job inventories. Accordingly, Hooijberg and Quinn (1992, p. 165) suggested that behavioral complexity can be assessed by applying the following formula (Bobko & Schwartz, 1984) to ratings of how much leaders displayed each of the roles in the competing values model.

$$\text{Integration} = [(k - 1) - (|X - Y|)] * [(X + Y)/2],$$

where,

k = range of integral response a scale (1 = manager never performs role; 7 = manager almost always performs role);

X = scores on one role (e.g., mentor role);

Y = scores on competing role (e.g., director role).

This formula creates an index of “integrative balance” among contrasting leader roles. High scores on this index indicate that managers are displaying high but relatively equal levels of competing roles. Likewise, managers who display equally moderate levels on competing roles will score higher on this index of behavioral complexity than managers who may score higher on one role but lower in a competing role. To fully assess behavioral complexity, integration scores are computed for the four dimensions of contrasting roles in the Competing Values Framework (i.e., mentor versus director, facilitator versus producer, monitor versus broker, and coordinator versus innovator). This index, combined with the job inventories described earlier, appears to provide an effective assessment approach to examine executive behavioral complexity. Research using this approach is presented in Chapter 5.

LEADER DEVELOPMENT

To the extent that behavioral complexity is necessary for successful senior leadership, leader development, then, involves expanding a rising leader’s capacity to enact and integrate a wider range of competing leadership roles. Hooijberg and Quinn (1992) provided a conceptual framework for leader development based on this premise. They also offer an example of such an intervention.

The basic premise of their approach to leader development is that greater behavioral complexity emerges when managers break from habitual behavioral patterns at work and begin to learn and enact new role behaviors. As managers become more skilled in new roles, they expand their behavioral repertoire and accordingly their capacity to integrate these roles with prior

learned responses. The critical dynamic for successful leader development in this framework becomes environmental influences and events that will trigger the manager's initiative to break comfortable routines and learn new role behaviors. Hall (1987) suggested that triggering events can result from (a) changes in the organizational and societal environment, (b) a manager's mentors and role models who themselves either demonstrate behavioral complexity or provide the opportunity for managers to explore new role requirements, and (c) personal changes that motivate managers to make changes in their work routine. Also, Hooijberg and Quinn argued that leader development interventions designed to enhance behavioral complexity are more effective when participants voluntarily seek changes in their habitual routines. When such changes are forced on managers, they may react by resisting such change; they also are not likely to be motivated to explore new role options.

To develop behavioral complexity, then, junior leaders need to be encouraged to break from routine role behaviors and provided the opportunity to learn and practice new leader role patterns. Hooijberg and Quinn (1992) described an example of a leader development intervention that uses this approach to enhance behavioral complexity (i.e., Project LEAD). The program provides a discourse on different managerial roles required for effective organizational leadership. It then challenges managers to examine and change their own habitual work roles. It promotes managerial reflection on their work practices with the goal of their understanding the need for role expansion. Participants then develop follow-up action plans to be implemented at their work site and reviewed in subsequent (i.e., 6-8 months later) training sessions.

This program avoids the training of specific behavior patterns in favor of a "cognitive reframing" approach that encourages the emergence of skills and abilities supporting different role prescriptions. Several theorists have questioned the effectiveness of specific behavior training when the performance domain is likely to be substantially different from the training domain (Ackerman, 1986, 1987; Fleishman &

Mumford, 1989a, 1989b). Such is the case for leadership (Mumford, Zaccaro et al. 1993). The approach described by Hooijberg and Quinn appears promising in that it focuses on expanding the array of managerial roles that the leader can effectively enact. That is, the program is grounded in developing through experience and reflection, the more elaborate social knowledge representations associated with the display of more complex social behavior in organizations.

SUMMARY AND EVALUATION

Key Questions for Evaluation of Behavioral Complexity Models of Executive Leadership:

- How do executive leadership performance requirements differ from such requirements at lower organizational levels?
 - Where do these role requirements shift in quality across organizational levels?
 - How is leader effectiveness and influence defined and operationalized at different organizational levels?
 - What is the relationship between the accomplishment of executive performance requirements and organizational effectiveness?
 - What individual characteristics distinguish executive from lower level leaders?
 - What individual characteristics distinguish successful from unsuccessful executive leaders?
-

How well do models of executive behavioral complexity reflect Day and Lord's (1988) suggestions for a systematic theory of executive leadership? Regarding statements about the nature of executive performance requirements, the answer is that they provide some but not all of the components suggested for such a

theory. The central mechanism through which executives influence organizational performance is their display and balancing of different requisite organizational roles. This behavioral complexity provides an effective response to the social complexity that is inherent in executive work.

Accordingly, leader effectiveness becomes operationalized by how well managers can accommodate different organizational constituencies that demand different role constellations from them (see Tsui, 1984a). Further, these models are grounded in either (or both) role theory or organization theory. For example, Quinn (1984, 1988) developed his model from an integration of four organizational effectiveness models—human relations, open system, internal process, and rational goal model. Each of these correspond to the four quadrants of the Competing Values Model. Tsui developed her framework from the central premises of role theory and the notion of role conflict (e.g., Katz & Kahn, 1978; Merton, 1957). Thus, these approaches reflect the theoretical base suggested by Day and Lord.

Where these models fall a bit short, at least in comparison to Stratified Systems Theory (as described in Chapters 2 and 3), is that they do not articulate clearly and precisely the differences in performance requirements between upper and lower organizational leaders and where the shifts in these requirements occur. Some inferences can perhaps be derived from each model. Indeed, some empirical studies have been completed that were based on these models and hypothesized hierarchical differences in role behavior (e.g., Pavett & Lau, 1983; Quinn, 1988). However, systematic differences are not offered by these models. This becomes problematic in terms of deriving leader competencies that change as one ascends organizational levels. It also inhibits the development of multilevel leader training programs.

Also, unlike Stratified Systems Theory, the behavioral complexity models do not clearly delineate the capacities and skills that contribute to the effective display of diverse executive roles. Mintzberg (1975) and Quinn (1984) offered characteristics that contribute to individual roles; but they do not offer qualities that facilitate the integration of these roles, particularly those

that are proposed as competing. Hooijberg and Quinn (1992) argued that cognitive complexity is one element of behavioral complexity; however, they do not fully articulate the rationale for this connection, except that this conceptual skill helps managers understand (and presumably integrate) all four roles. Zaccaro, Gilbert et al. (1991) provide a rationale by arguing that behavioral flexibility, an integral element of behavioral complexity, is grounded in elaborated social knowledge structures such as event schemas and behavioral scripts. Cognitive complexity would presumably contribute to the effective development of these knowledge structures. Thus, there is a conceptual basis for delineating individual characteristics associated with executive behavioral complexity. However, this basis needs to be articulated more systematically in terms of characteristics that separate upper from lower level managers, and that distinguish successful from unsuccessful executives.

While both Stratified Systems Theory and Integrative Complexity Theory provide measurement tools for the assessment of complex cognitive skills, the behavioral complexity models do not offer tools to assess complex social skills. This inhibits direct empirical tests of their major postulates. However, Hooijberg and Quinn (1992) provide a way of scoring data from ratings of managerial behavior to produce an index of role balance. This index, and other similar approaches, can provide a basis for assessing the antecedents and consequences of behavioral complexity.

A final element of a well-rounded executive leadership model is the specification of principles to guide the development of potential senior leaders. Such a framework for the development of behavioral complexity is provided by Hooijberg and Quinn (1992) and by Quinn, Faerman, Thompson, and McGrath (1990). This approach shares with Stratified Systems Theory the notion that increased job challenges will induce a break with habitual ways of thinking and behaving to produce more complex patterns that are more suited for executive work. Unlike the fundamental executive characteristic proposed by conceptual complexity models (i.e., conceptual capacity), the

skills proposed as the basis for executive behavioral complexity may be altered by specific targeted developmental interventions.

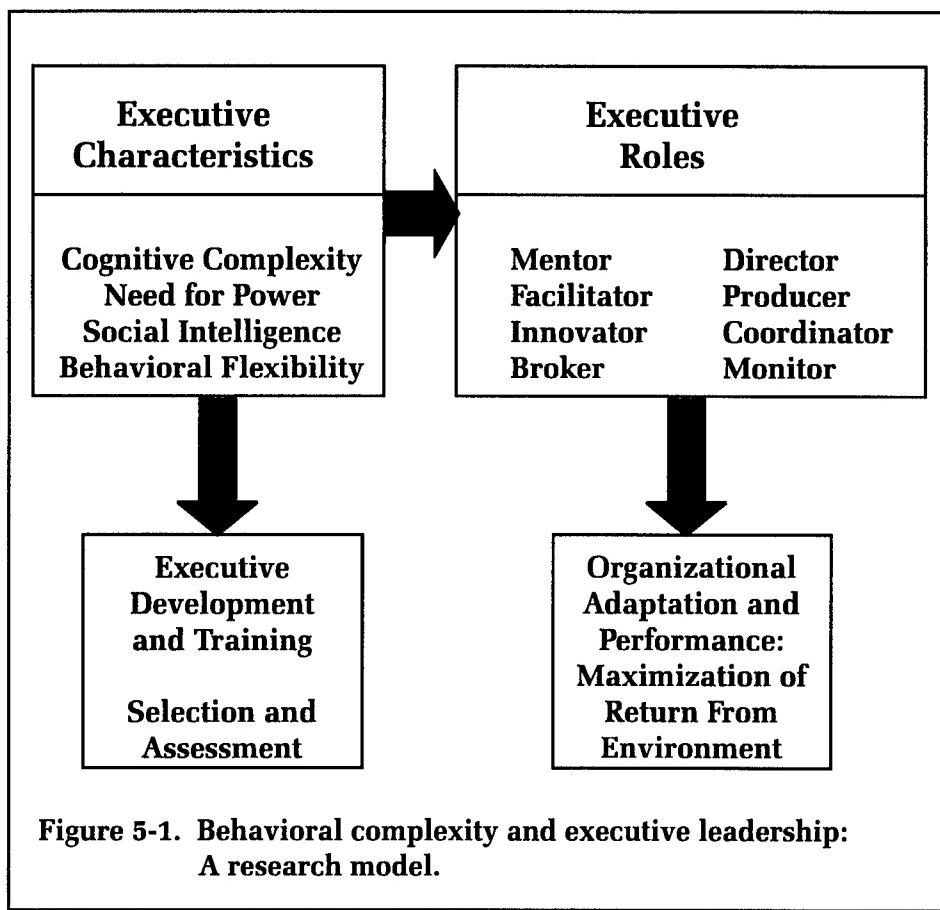
In sum, the behavioral complexity models provide a conceptual framework that complements quite well the models described in Chapter 2. Indeed, several researchers have argued that the competencies, skills, and behaviors described in both frameworks are necessary for effective executive leadership (Boal & Whitehead, 1992; Hooijberg & Quinn, 1992; House, 1992; Sashkin, 1992). Cognitive capacities provide the rationale for organized executive action, while behavioral or social capacities provide the means of implemented planned actions in complex social domains. Thus, understanding executive leadership and facilitating its development most likely requires an integration of the conceptual and behavioral complexity approaches.

Chapter 5

Behavioral Complexity Theories of Executive Leadership: Empirical Review and Evaluation

Chapter 4 presented a theoretical review and evaluation of several behavioral complexity theories of executive leadership. This chapter examines empirical research that provides data regarding postulates that can be derived from these models. As in Chapter 3, this review centers around the four themes of (a) nature of executive work, (b) requisite executive characteristics, (c) measurement of behavioral complexity, and (d) leader training and development. However, the research base regarding these themes is much more limited than the research base reviewed in Chapter 3 for conceptual complexity models of executive leadership. Part of this relative paucity is due to the fact that theoretical development of behavioral complexity models regarding the aforementioned themes has lagged significantly beyond the development of Stratified Systems Theory. For example, the specification of executive characteristics is not as elaborate as in other approaches, nor has the measurement of behavioral complexity or its development proceeded much beyond the work of Quinn (1984, 1988) and his colleagues. Thus, the empirical research base is smaller for this conceptual framework than for other perspectives of executive leadership.

Nonetheless, a number of studies provide data regarding the socially complex nature of executive work and the corresponding requirement for managerial behavioral complexity. Further, several studies have been completed on lower and middle-level managers regarding some individual characteristics that may be associated with greater displays of behavioral complexity. These studies provide some insight into the validity of this conceptual



**Figure 5-1. Behavioral complexity and executive leadership:
A research model.**

framework and provide the basis for future research endeavors with executive-level leaders.

A RESEARCH MODEL

Figure 5-1 presents a research framework for behavioral complexity models that is similar to the one used to examine the conceptual complexity models (see Figure 3-1). This model includes the executive roles and characteristics that, according to behavioral complexity models, should contribute to organizational effectiveness. As in Chapter 3, the research reviewed here is considered in terms of (a) the proposed contents represented in each box (e.g., Do the executive roles described by behavioral complexity models accurately reflect executive level

functioning?), and (b) the relationships proposed between each of the elements in the model (e.g., Is the accomplishment of multiple executive roles significantly associated with organizational gain?).

The basic premise of behavioral complexity models is that because of higher social demands and social complexity at upper organizational levels, executives are required to enact multiple roles to facilitate organizational adaptation and performance. The roles indicated in Figure 5-1 are those proposed by Quinn (1984, 1988; Hooijberg & Quinn, 1992); they are fairly compatible with the roles described by Mintzberg (1973, 1975; see Hart & Quinn, 1993, for a comparison). Likewise, in line with Tsui's (1984a, 1984b) framework, these roles reflect the multiple constituencies that executives must balance in the accomplishment of their work. In essence, executives add value to their organization when they are able to enact each and all of these roles successfully; i.e., organizational effectiveness is determined by the ability of top executives to display behavioral complexity.

According to the models described in Chapter 4, the display of behavioral complexity is facilitated in part by four executive characteristics: (a) cognitive complexity (Hooijberg & Quinn, 1992); (b) need for power (Tsui, 1984b); (c) social intelligence (Zaccaro, Gilbert et al., 1991); and, in particular, (d) behavioral flexibility (a subcomponent of social intelligence; Zaccaro, Gilbert et al., 1991). Research from the perspective of behavioral complexity models needs to link these characteristics to the display of multiple executive roles, and the organizational performance and adaptation. Further, measurement tools need to be validated regarding the extent to which they assess behavioral complexity or these executive characteristics. Likewise, leader development efforts from this perspective should be evaluated according to their efficacy in fostering executive behavioral complexity.

The research questions that are the focus of this chapter are derived from the model in Figure 5-1. These questions center on the themes that have thus far guided this review: the nature of executive work, requisite executive characteristics, and leader

development and assessment. These are the themes of the remaining sections of this chapter.

THE NATURE OF EXECUTIVE ROLES

The behavioral complexity models described in Chapter 4 propose that executives face higher and more complex social demands than lower level managers. These demands emerge from (a) requirements that executives manage, integrate, and coordinate the activities of multiple instead of single organizational units; (b) the necessity of executives to rely on more indirect forms of social influence and persuasion to foster organizational change; and (c) the responsibility of top executives to represent the organization to a variety of outside stakeholders, each with different demands of the organization; i.e., to engage in boundary spanning with diverse environmental constituencies. These different demands create diversity in executive role requirements and a greater need for behavioral complexity.

These notions lead to the following propositions:

1. *Executives enact a greater variety of behavioral roles than lower level leaders; these roles reflect differing work orientations (e.g., innovation versus stability; production versus personnel development; external broker versus internal manager).*
2. *The successful accomplishment of multiple executive roles will be positively associated with organizational effectiveness.*

Executive Role Constellation

Breadth of executive roles. The question of what behavioral roles are required in the context of executive work has been considered by several researchers using analyses of subject matter experts (e.g., Luthans & Lockwood, 1984), factor analyses of job description surveys (e.g., Baehr, 1992; Morse & Wagner, 1978; Tornow & Pinto, 1976; Tsui, 1984a), and analyses of managerial importance and time-spent ratings of job activities (Kraut et al., 1989; Mahoney et al., 1965; Page and Tornow,

1987). A sampling of these studies and their findings are indicated in Table 5-1.¹

The results of these studies indicate a wide range of executive roles as suggested by the behavioral complexity models. Most of the classifications contain role activities that are congruent with several, if not all, of Mintzberg's roles. Further, most of these classifications contain roles and activities that can be placed in each of the four *competing* sets of values identified by Quinn (1988; Hart and Quinn, 1993). A consistent theme, for example, is the requirement of executives to act as external representatives of their organization as well as internal organizational coordinators. Likewise, more recent classifications indicate roles related to personnel development and mentoring, as well as structuring their work to meet production schedules (e.g., Baehr, 1992; Luthans & Lockwood, 1984; Tsui, 1984a; Yukl, 1989). This suggests empirical support for the premise that the nature of senior leadership includes a range of competing work requirements.

A recent study by Gibb (1994) provided data indicating that the frequency of Mintzberg's roles displayed by managers varied according to environmental conditions. Gibb examined informational, decisional, and interpersonal roles in the context of high or low environmental complexity (number of units requiring executive interaction and degree of sophisticated knowledge required regarding environmental elements) and high or low environmental dynamism (rate of change in the environment). He found the managers across multiple organizational levels displayed a higher frequency of all three sets of roles under conditions of high environmental complexity

¹ Note that several of these studies were examined in Chapter 3 for evidence supporting postulates derived from conceptual complexity models of executive leadership. Specifically, the premise was examined that executives engage in more long-term planning and boundary spanning than lower level leaders. The focus in the present chapter is not only on these behavioral roles, but also on others specified by behavioral complexity models. That is, executives are expected to enact a greater number of roles in addition to planner and boundary spanner than lower level leaders. Therefore, the data from these studies are also useful in addressing this broader question.

Table 5-1. A Sampling of Empirically Derived Leader Role/Behavior Classifications

Study	Roles/Activity Clusters
1. Stogdill, Shartle, Wherry, & Jaynes (1955)	<ul style="list-style-type: none"> 1. high-level policy making 2. administrative coordination 3. methods planning 4. representation of interests 5. personnel service 6. professional consultation 7. maintenance services 8. inspection
2. Hemphill (1959)	<ul style="list-style-type: none"> 1. providing staff service 2. supervision of work 3. internal business control 4. technical products and markets 5. human, community, and social affairs 6. long-range planning 7. exercise of broad power and authority 8. business reputation management 9. personal demands 10. preservation of assets
3. Mahoney, Jerdee, & Carroll (1965)	<ul style="list-style-type: none"> 1. supervisor 2. planner 3. generalist 4. investigator 5. coordinator 6. negotiator 7. evaluator 8. multispecialist
4. Tornow & Pinto (1976)	<ul style="list-style-type: none"> 1. long-range planning 2. coordination of organizational units 3. internal control 4. product responsibility and servicing 5. public relations 6. technical consulting 7. strategic decision making 8. financial decision making 9. fact gathering 10. supervision 11. managing complexity and stress 12. financial monitoring 13. personnel management
5. Morse & Wagner (1978)	<ul style="list-style-type: none"> 1. motivating and conflict handling 2. providing development 3. organizing and coordinating 4. strategic problem solving 5. information handling 6. managing environment and resources

Table 5-1. A Sampling of Empirically Derived Leader Role/Behavior Classifications

Study	Roles/Activity Clusters
6. McCall & Segrist (1980)	1. leader 2. liaison 3. entrepreneur 4. environmental monitor 5. resource allocator 6. spokesperson
7. Lau, Newman, & Broedling (1980)	1. leadership and supervision 2. information gathering and disseminating 3. technical problem solving and executive decision making 4. allocating resources
8. Luthans & Lockwood (1984)	1. planning/coordinating 2. staffing 3. training/developing 4. decision making/problem solving 5. processing paperwork 6. exchanging routine information 7. monitoring/controlling performance 8. motivating/reinforcing 9. disciplining/punishing 10. interacting with outsiders 11. managing conflict 12. socializing/politicking
9. Tsui (1984a)	1. leader 2. spokesperson 3. resource allocator 4. entrepreneur 5. environmental monitor 6. liaison
10. Hales (1986)	1. acting as figurehead and unit leader 2. liaison 3. monitoring, filtering, disseminating information 4. allocating resources 5. disturbance handling 6. negotiating 7. innovating 8. planning 9. controlling and directing subordinates
11. Page & Tornow (1987)	1. planning/controlling 2. strategic decision making 3. monitoring business indicators 4. supervising 5. coordinating 6. sales/marketing 7. public relations 8. consulting 9. administration 10. labor relations

Table 5-1. A Sampling of Empirically Derived Leader Role/Behavior Classifications

Study	Roles/Activity Clusters
12. Yukl (1989)	<ul style="list-style-type: none"> 1. networking 2. supporting 3. managing conflict and team building 4. motivating 5. recognizing and rewarding 6. planning and organizing 7. problem solving 8. consulting and delegating 9. monitoring operations and environment 10. informing 11. clarifying roles and objectives
13. Kraut, Pedigo, McKenna, & Dunnette (1989)	<ul style="list-style-type: none"> 1. managing individual performance 2. instructing subordinates 3. planning and allocating resources 4. coordinating interdependent groups 5. managing group performance 6. monitoring the business environment 7. representing one's staff
14. Baehr (1992)	<ul style="list-style-type: none"> 1. setting organizational objectives 2. financial planning and review 3. improving work procedures and practices 4. interdepartmental coordination 5. developing and implementing technical ideas 6. judgment and decision making 7. developing group cooperation and teamwork 8. coping with difficulties and emergencies 9. promoting safety attitudes and practices 10. communications 11. developing employee potential 12. supervisory practices 13. self-development and improvement 14. personnel practices 15. promoting community-organization relations 16. handling outside contacts
15. Javidan & Dastmalchian (1993)	<ul style="list-style-type: none"> 1. mobilizer 2. ambassador 3. driver 4. auditor 5. servant

as well as a higher frequency of decisional roles under conditions of environmental dynamism. These data suggest that environmental characteristics will determine the necessity for executives to display all of Mintzberg's roles in order to facilitate organizational adaptation. Merz and Sauber (1995) also provided

data illustrating the importance of environmental conditions in delimiting, or enhancing, the necessity of particular managerial roles.

Executive role shifting. An underlying premise in behavioral complexity models is that executive work is characterized by frequent role shifting and a constant pace of activity, while balancing multiple work requirements. Evidence for this premise is provided by interviews with top executives as well as by time-allocation analyses of their work day. Kotter (1982a, 1982b) reported from his interviews with and observations of 15 general managers that they spent a significant proportion of their time interacting with others, covering a wide range of topics, and often behaved in a reactive rather than proactive mode. Mintzberg's (1975) observations of five executives lead to his conclusion that "half of the activities engaged in by the five chief executives . . . lasted less than nine minutes and only 10% exceeded one hour" (p. 50). A similar study by Kurke and Aldrich (1983) found that almost two thirds of the activities completed by four top executives lasted less than 9 minutes. Regarding a balancing of different organizational orientations, Jonas, Fry, and Srivastva (1990) noted from their interviews with 24 chief executives their efforts to maintain both stability and innovation within their organizations (p. 40):

Part of the role of the CEO is to simultaneously embody the status quo and to question it. As custodian of the firm's history he or she strives to define the strengths of the enterprise by acting as a force for stability and an expression of its culture. Equally concerned with the future, he or she regularly asks the frame-breaking question, challenges organizational norms, and plays the maverick to stimulate creativity and innovation.

Time-allocation analyses of executive managerial activities reveal a similar pattern of multiple-role accomplishment and role shifting under time-intensive circumstances. Haas, Porat, and Vaughn (1969) found that the time allocated to seven activities completed by executives (planning, negotiating, investigating, coordinating, supervising, evaluating, and other) was fairly comparable, ranging from about 10.5% (investigating) to about

24% (negotiating) (3.28% of managerial activities were in the category of "other"). Carroll and Gillen (1987), summarizing the earlier work of Mahoney, Jerdee, and Carroll (1965), reported a wider range of time allocations, 2% to 26%, across eight activities (planning, representing, investigating, negotiating, coordinating, evaluating, supervising, and staffing). However, these data were aggregated across multiple organizational levels. In an early time allocation study of Swedish executives, Carlson (1951) found that they divided their time about equally between activities outside of the firm and within the firm. Other time allocation studies by Stogdill and Shartle (1955) and Stewart (1967) illustrate similar patterns of diverse activities and contacts. After reviewing these and other studies, Hales (1986) concluded (pp. 96-97):

A picture of managerial work as technical, tactical, reactive, and frenetic recurs across studies of time budgeting. Carlson (1951), Copeman et al. (1963), Horne and Lupton (1965), and Mintzberg (1973) all indicate that even senior managers spend little time on planning or abstract formulation, are subject to constant interruptions, hold short face-to-face meetings that flit from topic to topic and respond to the initiatives of others far more than they initiate themselves.

Differences between executive and lower level leaders.

These studies present an overall picture of the level and distribution of managerial activities. An important question for this report is whether the range and frequency of role requirements and managerial activities change as a function of hierarchical organizational level. This question directly addresses differences in work requirements between junior and senior leaders that Day and Lord (1988) suggested should be articulated by effective theories of executive leadership. Several studies have examined the differential frequency of the work roles identified by Mintzberg (or those shown in Table 5-1) across organizational levels. Mahoney et al. (1963) found that leaders at all levels spent some time doing all of the activities in their classification; however, planning and generalist activities were more prevalent at higher organizational levels, while direct

subordinate supervision was more characteristic of junior leaders. Page and Tornow (1987) found more activity associated with planning, strategic decisionmaking, public relations, and environmental monitoring among executives than lower level managers and supervisors. Supervisors were higher than executives on supervising subordinates and administration. Similar findings were reported by Kraut et al. (1989) who reported that monitoring of the business environment and coordination of multiple groups increased at higher organizational levels, but the frequency of activities related to subordinate instruction and management of individual performance declined.

Studies by Alexander (1979), Paolillo (1981), and Pavett and Lau (1983) focused particularly on the roles specified by Mintzberg and determined their frequency across different organizational levels. Alexander (1979) reported that two interpersonal roles (figurehead, liaison), three informational roles (monitor, disseminator, spokesman) and one decisional role (entrepreneur) were more required at higher organizational levels. Paolillo (1981) found that 7 of the 10 roles (figurehead, monitor, disseminator, spokesperson, entrepreneur, resource allocator, and negotiator) were more important for top organizational managers than for their counterparts at lower levels. Pavett and Lau (1982) also found that most of Mintzberg's roles (figurehead, liaison, monitor, disseminator, spokesperson, resource allocator, negotiator) increased in importance as managers ascended the organizational hierarchy. While some differences are apparent across the three studies in the strengths of particular differences across levels, all three agree that the roles of leader, disturbance handler, and technical expert did not become more important at higher levels. In fact, Pavett and Lau demonstrated that the interpersonal role of "leader" was significantly more important at *lower* organizational levels.

Baehr (1992) provided further evidence for the hierarchical differentiation of leader role requirements. He completed a cluster analysis of 16 job functions on 1,358 leaders at different levels in industry, banking, and health organizations. The cluster analysis indicated 11 clusters, with the first 3 reflecting

cluster analysis indicated 11 clusters, with the first 3 reflecting the job functions of executives, middle managers, and line supervisors. The top five activities in the executive cluster were (a) setting organizational objectives, (b) communications, (c) promoting community-organization relations, (d) interdepartmental coordination, and (e) handling outside contacts. Middle managers were characterized by (a) communications, (b) interdepartmental coordination, (c) improving work practices, (d) developing teamwork, and (e) judgement and decisionmaking. The major job functions of line supervisors were (a) developing teamwork, (b) supervision, (c) coping with emergencies, (d) developing employee potential, and (e) personnel management. Thus, executives were more oriented toward planning and boundary-spanning roles than lower level managers, while the latter were more concerned with intraorganizational coordination and personnel supervision.

Summary. Taken together, the data from these studies suggest three conclusions about the role requirements of organizational leaders. First, a range of behaviors reflecting boundary spanning, planning, coordinating, monitoring, supervising, and personnel development characterize organizational leadership work. Second, senior leaders are more likely to be engaged in planning and boundary-spanning activities than junior leaders. Third, the pattern of roles required at higher organizational levels include incongruent or conflicting behaviors. For example, the personnel development requirements reported by several of the classifications in Table 5-1 can conflict with the need for immediate action and direction. Likewise, interactions with external constituencies from a dynamic organizational environment can prompt leader behaviors that are incompatible with the internal coordination and maintenance behaviors required when working with subordinate organizational units. Thus, as suggested by Quinn (1984, 1988), the balance of competing leader roles, or behavioral complexity, becomes more important at higher organizational levels.

Behavioral Complexity and Executive Performance

The diversity of required executives roles leads to the question of whether leaders who display behavioral complexity, either by enacting a range of integrated leadership roles (as suggested by Mintzberg) or by balancing competing roles (as suggested by Tsui and Quinn), are more effective than those leaders who do not display high behavioral complexity. Morse and Wagner (1978) examined this question by comparing managers of high performing organizational units (defined through objective product data such as profit margins) with managers of low performing organizational units on the following job functions: (a) motivating and conflict handling; (b) providing development; (c) organizing and coordinating; (d) strategic problemsolving; (e) information handling; and (f) managing environment and resources. High performing offices had managers who displayed significantly higher response frequencies on each of these functions than managers of low performing offices. Studies by McCall and Segrist (1980) and Pavett and Lau (1983) demonstrate significant associations between enactment of Mintzberg's managerial roles and promotion rate and rated performance, respectively. In line with studies demonstrating the relative unimportance assigned to the interpersonal leader role for executives, both studies show that high performing managers indicated lower responses on this role than low performing managers.

Tsui (1984a) classified 153 managers according to their reputational effectiveness as perceived by different organizational constituencies (i.e., superiors, peers, and subordinates). Managers having high reputational effectiveness met the expectations of all three sets of constituents. Managers with low reputational effectiveness failed to satisfy any of their constituent groups, while partially reputationally effective managers met the expectations of a subset of constituents. High reputationally effective managers can be considered as being higher in behavioral complexity because they successfully

balanced potentially conflicting expectations from different organizational groups; likewise, those with partial or no reputational effectiveness can be considered as lower in behavioral complexity because they are responsive to only one or no constituency within the organization. Analyses of variance on four criteria of managerial performance indicated significant differences between high reputationally effective managers and both groups of less effective managers on performance appraisal ratings, intracompany promotion rates, and career advancement rates. Also, highly effective managers differed from those with no reputational effectiveness on merit increases. Thus, these findings suggest that behavioral complexity, operationalized as rated effectiveness by multiple groups with differing perspectives, was significantly associated with individual managerial performance.

Quinn and his associates have completed several studies that examined behavioral complexity and both individual performance and organizational effectiveness. For example, Hooijberg and Quinn (1992) describe an unpublished study by Denison, Hooijberg, and Quinn (1991) in which subordinates rated their supervisors on the eight leader roles in the Competing Values Framework. Superiors provided ratings of each manager's effectiveness. Behavioral complexity was defined by the degree to which the profiles of each manager resembled the eight competing leader roles. Denison et al. reported from their results that effective managers were rated as more behaviorally complex than less effective managers.

Hooijberg and Quinn (1992) operationalized behavioral complexity using the following formula (Bobko & Schwartz, 1984) to create an index of "integrative balance" among contrasting leader roles:

$$\text{Integration} = [(k - 1) - (|X - Y|)] * [(X + Y)/2],$$

where,

- k = range of integral response scale (1 = manager never performs role; 7 = manager almost always performs role);
- X = scores on one role (e.g., mentor role);
- Y = scores on competing role (e.g., director role).

High scores on this index indicate that managers are displaying high but relatively equal levels of competing roles, while lower scores indicate managers who frequently enact one of the roles but not others. Integration scores are computed for the four dimensions of contrasting roles in the competing values framework (i.e., mentor versus director, facilitator versus producer, monitor versus broker, and coordinator versus innovator). Quinn, Spreitzer, and Hart (1991) applied this operationalization and reported that behaviorally complex managers were rated as more effective by their subordinates, peers, and superiors than those who scored lower in behavioral complexity. Note that these results parallel those on reputational effectiveness across different constituencies reported by Tsui (1984a) using a different operationalization of behavioral complexity.

Hart and Quinn (1993) examined the association between behavioral complexity and organizational outcomes such as financial performance (cash flow, profitability), business performance (sales growth, product development, market share), and stakeholder performance (product quality, employee satisfaction, overall performance). They condensed the eight competing leader roles into four categories reflecting each of the four quadrants in their model (see Table 4-2). *Motivators* were characterized by flexibility and an internal focus; *analyzers* by predictability and an internal focus; *vision setters* by flexibility and an external focus; and *task masters* by predictability and an external focus. Hart and Quinn hypothesized that the simultaneous use of all four roles by CEOs will be associated with all three organizational performance indices. They tested this hypothesis using a cluster analysis to create three groups: *high complexity* (high scores on all leader roles), *unbalanced* (high on analyzer and task master, but low on competing roles), and *low complexity* (low scores on all four roles). Analyses of variance showed that indeed organizations with managers high on behavioral complexity were significantly stronger on all three performance criteria than organizations with managers either low in behavioral complexity or displaying an unbalanced or mixed leader role profile.

Taken together, the results of these studies demonstrate significant support for the premise that senior leaders who display behavioral complexity are more successful than those who do not. The studies by McCall and Segrist (1980) and Pavett and Lau (1983) demonstrated a relationship between the leader's display of multiple leadership roles and his or her individual performance. Tsui (1984a), Denison et al. (1991), and Quinn et al. (1991) assessed behavioral complexity more directly by operationalizing it as a balancing of *competing* expectations and leader roles. They also found significant associations with leader effectiveness. The results of Morse and Wagner (1978) and Hart and Quinn (1993) are particularly important because they associated leader display of multiple roles and the integration of competing roles, respectively, with organizational outcomes. Senior leaders are more responsible for organization-wide effectiveness than lower level leaders (Day & Lord, 1988). Accordingly, a critical criterion for senior leadership becomes the success of the organization as a whole. Thus, these two studies provide a particularly appropriate demonstration of the importance of individual senior leader behavioral skills.

Evaluation

The research reviewed in this section indicates support for the two postulates derived from behavioral complexity models. Studies using a diverse set of methodologies demonstrate that executives are required to enact a greater variety of roles than their lower level counterparts. These roles reflect the classifications offered by both Mintzberg (1973, 1975) and Quinn (1984, 1988; Hooijberg & Quinn, 1992). That is, executives are required to be external representatives of their organizations, as well as internal operational managers. They also need to maintain organizational stability while creating the conditions for organization innovation and change. To the degree these are to be viewed as contrasting roles, as suggested by Quinn (1984) and Hooijberg and Quinn (1992), then the results from the studies described here indicate that executives are required to display more behavioral complexity than lower level executives.

The studies reviewed also provide support for the second postulate that the display of behavioral complexity is associated with personal and organizational effectiveness. These studies demonstrate that the enactment of multiple roles specified by Mintzberg and other theorists as well as the balancing of seemingly conflicting executive roles leads to executive success. Thus, a significant link in the research model illustrated in Figure 5-1 between executive complexity and organizational performance has been established. An important question, then, is: What individual characteristics are linked to behavioral complexity and multiple executive role enactment?

REQUISITE EXECUTIVE CHARACTERISTICS

Two approaches can be taken to examine executive characteristics that are associated with the display of behavioral complexity. The first is to examine those qualities that facilitate the accomplishment of each executive role. Along these lines, Mintzberg (1975) and Quinn (1984, 1988; Hooijberg & Quinn, 1992) offer a set of managerial traits and skills that correspond to their role clusters. However, as noted in Chapter 4, this approach ignores the central dynamic of behavioral complexity models—that important executive qualities are those that facilitate the executive's ability to enact *multiple* roles and balance competing behavioral orientations. As shown in Figure 5-1, the behavioral complexity models of executive leadership, and related approaches, suggest four such characteristics: cognitive complexity, need for power, social intelligence, and behavioral flexibility: Accordingly, the following postulates are offered regarding behavioral complexity and requisite executive qualities:

3. *Executives will possess stronger cognitive complexity, need for power, social intelligence, and behavioral flexibility than lower level leaders. These qualities will also differentiate successful from unsuccessful executives.*
4. *Cognitive complexity, need for power, social intelligence, and behavioral flexibility will be associated with greater*

behavioral complexity exhibited by organizational managers.

Studies examining cognitive complexity and executive action were reviewed in Chapter 3. However, no research has been directed at the question of whether cognitive complexity facilitates the display of executive flexibility. Streufert, Streufert, and Castore (1968) examined the relationship between cognitive complexity and the degree to which individuals displayed 12 of Stogdill's (1963) leader behavior characteristics in a negotiation simulation game. While individuals with low complexity displayed higher levels of some leader behaviors, "cognitively complex leaders (with the exception of 'tolerating freedom' and 'demanding reconciliation' scores) spread their leadership styles more evenly among the various leadership characteristics" (Streufert & Swezey, 1986, p. 175). This suggests that such individuals are more likely to enact different leadership approaches; i.e., demonstrate more behavioral variability. These data, however, were collected from an undergraduate student sample; thus, additional research with executive leaders is necessary before the determining role of cognitive complexity in behavioral complexity can be ascertained.

The same conclusion can be made for power and dominance motives as characteristics enhancing executive behavioral complexity. Tsui (1984b) argued that high reputational effectiveness, which reflected an ability to respond effectively to multiple constituencies, was associated with a high need for power and influence. Although several studies have demonstrated a link between power needs and leadership (Harrell & Stahl, 1981; House, Spangler, & Woycke, 1991; Ross & Offermann, 1991; Stahl, 1983), such needs have not been empirically linked to behavioral complexity. Thus, the determining role of executive power needs in the display of multiple executive roles remains speculative.

Zaccaro, Gilbert et al. (1991) argued that the degree to which leaders were able to select appropriate situational responses depended in large part on their ability to perceive interpersonal and system contingencies and requirements in organizations.

The findings from several early studies on social perceptiveness and leadership were decidedly mixed (Bell & Hall, 1954; Campbell, 1955; Chowdhry & Newcomb (1952), Gage & Exline, 1953; Hites & Campbell, 1950; Nagle, 1954; Trapp, 1955; Van Zelst, 1952). However, many of these studies did not examine organizational managers, much less executives. Further, significant measurement problems have plagued the assessment of social perceptiveness and social intelligence.

More recently, Zaccaro, Zazanis, Diana, and Gilbert (1995) found a significant association between social intelligence and leadership rankings in military training groups. Gilbert and Zaccaro (1995) examined social intelligence and career achievement in military officers ranging in rank from 2nd Lieutenant to Colonel. They reported that both interpersonal and system perceptiveness was significantly associated with indices of military career success. Systems perceptiveness, but not interpersonal perception skills, contributed significantly to the prediction of rank and career achievement, even after accounting for officer intelligence and creative thinking skills. Similar data were reported by Howard and Bray (1988). They found that skills in the perception of social cues were significantly associated with attained managerial level 8 and 20 years into a manager's career. While these data are suggestive, they do not establish a link between social intelligence and the display of behavioral complexity. Further, the samples of these studies did not consist of organizational executives.

Behavioral flexibility is perhaps the executive characteristic that is intuitively linked most closely with behavioral complexity. Evidence for a significant association between leadership and behavioral flexibility appears in three sets of studies. The first employed a "rotation design" methodology to investigate cross-situational stability in leader emergence (Ferentinos, 1996; Kenny & Zaccaro, 1983; Rueb & Foti, 1990; Zaccaro, Foti, & Kenny, 1991). In these studies, leadership requirements and group characteristics are varied; leader emergence in one situation is then correlated with leader emergence in other situations. The general result from the studies cited is that while cross-situational stability was

exhibited in leader emergence, emergent leaders appeared to be changing their leader responses according to situational requirements.

A second set of studies supporting a link between behavioral flexibility and leadership has focused on self-monitoring as a characteristic of emergent leaders. Snyder (1974, 1979) defined self-monitoring as an individual difference variable that included an ability to control one's behavior in response to social cues. Paulus and Martin (1988) have identified self-monitoring as reflecting primarily behavioral flexibility. Research has shown that high self-monitors differ from low self-monitors on a number of behaviors linked to leadership, including adaptiveness to new situations (Snyder, 1979), initiation of social interactions (Ickes & Barnes, 1977), boundary spanning (Caldwell & O'Reilly, 1982), communication effectiveness, and persuasive ability (Sypher & Sypher, 1982). Several studies in both laboratory and field settings report significant associations between self-monitoring scores and leadership status (Dobbins, Long, Dedrick, & Clemons, 1990; Ellis, 1988; Ellis, Adamson, Deszca, & Cawsay, 1988; Foti & Cohen, 1986; Rueb & Foti, 1990; Garland & Beard, 1979). Further, Zaccaro, Futi, & Kenny (1991) found a significant correlation between self-monitoring and leader emergence scores averaged across four different group situations. Taken together, this evidence supports a link between behavioral flexibility as operationalized by self-monitoring and leadership.

Several of the prior studies did not examine organizational executives or even lower level managers. A third set of studies provide an investigation of the link between behavioral flexibility and leader career achievement and advancement. Gilbert and Zaccaro (1995) found that flexibility was significantly correlated with military career success, even when controlling for officer intelligence and creative thinking skills. Howard and Bray (1988) reported that behavioral flexibility was significantly correlated with attained managerial level both 8 and 20 years into an individual's career. Ritchie (1994) examined 24 individual characteristics, including behavioral flexibility, as part of an assessment of senior management potential. In his

sample of 115 managers, approximately half had attained a level of middle- to upper-level management 7 years after initial assessment. Ritchie found that behavioral flexibility was one of the top three correlates of attained level. Ritchie also completed a cluster analysis of managers and derived three clusters: "stars," "over-achievers," and "plateaued." Thirty-eight percent of the stars, 16% of the overachievers, and none of the plateaued managers were promoted to upper level management positions. Stars achieved higher ratings of behavioral flexibility than overachievers who scored higher than the plateaued group. Taken together, these studies provide support for an association between behavioral flexibility as a leader characteristic and managerial career advancement.

Evaluation

As indicated by this review, there are few studies that have empirically examined executive characteristics that specifically promote behavioral complexity. Behavioral flexibility has been the focus of the bulk of this research and does appear to be associated with executive leadership potential. This construct reflects a manager's ability to switch roles or vary his or her behavior in accordance with situational requirements (Zaccaro, Gilbert et al., 1991). Thus, its link with executive leadership is congruent with behavioral complexity models. The research just described suggests that upper level leaders differ from lower level leaders in terms of this skill. However, few, if any, studies to date have examined behavioral flexibility solely in executive-level leaders to determine if variance on this skill is associated with variance in executive performance. Such research is necessary before behavioral flexibility can be considered an importance executive competency.

It is also necessary to associate proposed executive characteristics, including behavioral flexibility, with specific measures of displayed role diversity and behavioral complexity. Several of the aforementioned studies have demonstrated that such executive diversity is associated with personal and organizational effectiveness (Denison et al., 1991; Hart & Quinn, 1993; McCall & Segrist, 1980; Pavett & Lau, 1983; Tsui, 1984a).

What is missing, however, is an empirical test of the premise that such individual characteristics as cognitive complexity, behavioral flexibility, need for power, and social perception skills influence organizational performance indirectly by facilitating an executive's ability to be behaviorally complex. This test is important because other models of executive leadership offer these same characteristics as important executive competencies, but suggest their influence on performance is mediated by different processes. For example, conceptual capacity models argue that cognitive complexity is important because it allows executives to construct more complex frames of reference and organizational causal maps (Jacobs & Jaques, 1987; Jacobs & Lewis, 1992). Likewise, theories of charismatic leadership argue that need for power is associated with effective inspirational leadership (House & Howell, 1992). It is certainly possible that multiple mediated linkages exist between these characteristics and executive and organizational effectiveness. Nonetheless, these linkages need to be identified and sorted through empirical investigation.

LEADER DEVELOPMENT AND ASSESSMENT

Assessment of Behavioral Complexity

There is a significant paucity of empirical research investigating the measurement of executive behavioral complexity or its development in potential executives. As noted in Chapter 4, behavioral complexity has been assessed in two ways. The first and most common way is to have managers complete work behavior inventories that specify a number of leadership activities. Behavioral complexity is operationalized by high scores across all leadership dimensions. Quinn (1988) has used this approach with an instrument that assesses each of the roles in the Competing Values model. The second approach is to use the formula applied by Hooijberg and Quinn (1992) (described earlier in this report) to assess the balance executives achieve across different roles. Recall that using this formula would produce assessments of higher behavioral complexity for managers who indicate moderate scores across all of the roles

than for managers who score high on some roles but low on others.

Both approaches are conceptually sound in terms of assessing behavioral complexity. However, there is little if any psychometric evidence regarding these approaches. Quinn (1988) mentions an unpublished study by him and his colleagues (Quinn, Faerman, & Dixit, 1987) that found evidence for the convergent and divergent validity of his Competing Values Leadership Instrument; however, no other details such as a description of the alternative measures used in their methodology (i.e., a multimethod-multitrait approach) and the specific pattern of correlations across scales was provided. Quinn (1988) also summarized the results of a factor analysis of the Competing Values Leadership Instrument. As expected, eight factors, corresponding to each of the leadership roles, were indicated by this analysis. Further, Quinn (1988) reported strong interitem consistencies for each subscale. These findings suggest preliminary evidence for the psychometric soundness of Quinn's instrument. Unfortunately, no similar evidence has been gathered to assess Hooijberg and Quinn's operationalization of behavioral complexity in terms of their integration formula.

Behavioral Complexity and Leader Development

Hooijberg and Quinn (1992) also describe a leader development program based on their behavioral complexity model. The purpose of this program, called Project LEAD, is to facilitate middle managers to reexamine and reflect upon their own habitual work roles, with the goal of expanding their role repertoire. Quinn et al. (1990) provide a textbook on becoming a master manager that can be used in conjunction with this program. Hooijberg and Quinn describe the implementation of this program at Ford Motor Company. While they do not provide any specific data to assess the effectiveness of this program in terms of reaction, learning, behavior, or organizational results criteria, they have collected some evaluation data. They summarize these data as follows (pp. 172-173):

The data suggest that the core program deeply impacts the existing mind-sets or paradigms of the middle managers and that the middle managers redefine self and role in the organization. The [program's] activities lead to new patterns of behavior The outcomes of the initiatives [required by the training program] are valued in about 95 percent of the cases, but in 5 percent of the cases people are punished for their efforts. These people become disillusioned with the process and with the program itself. Those who are reinforced continue to grow and increase in self-confidence. These people continue to empower self and others. Such empowerment leads to new experiences and perspectives and to further redefinition of self and role.

Summary

Preliminary research on both the assessment and development of behavioral complexity by Quinn and his colleagues suggests some promising directions. However, additional studies are needed to ascertain the validity of the proposed assessment tools as well as Project LEAD. Further, the developmental approach described by Quinn is an instruction-based program. However, Hooijberg and Quinn (1992) argue that growth in behavioral complexity emerges not only from such training, but also from a supportive work environment that induces and sustains new work role behaviors. Thus, work challenges along with a supportive superior appear to be necessary elements of leader development from this perspective. These factors also need to be considered in an evaluation of Project LEAD or other development efforts derived from behavioral complexity models of executive leadership.

BEHAVIORAL COMPLEXITY THEORIES: GENERAL CONCLUSIONS

The empirical review of research related to executive behavioral complexity presented in this chapter yields the following conclusions regarding the relationships described in Figure 5-1:

- Executive-level leadership is characterized by a greater diversity of managerial roles than lower level leadership. These roles reflect competing work orientations such as stability versus innovation, production versus personnel development, and internal versus external focus.
- The successful accomplishment of multiple and diverse roles by executives is associated with indices of personal and organizational effectiveness.
- There is limited, if any, empirical evidence linking cognitive complexity, need for power, and social intelligence to an executive's successful accomplishment of multiple and diverse organizational roles.
- Behavioral flexibility is associated with indices of managerial career advancement and attained organizational level.
- Insufficient empirical evidence exists regarding the validity of (a) proposed measures of behavioral complexity, and (b) the development of corresponding skills in rising executives.

These conclusions indicate that while the specification of executive leadership as involving the balancing and accomplishment of multiple roles is fairly well substantiated, the empirical validation of executive characteristics, their measurement, and their development has lagged significantly behind. Thus, the full contributions of the behavioral complexity models to understanding key dimensions of executive leadership must remain speculative until additional empirical data regarding these questions can be gathered.

An underlying theme across several of the studies reviewed both here and in previous chapters is the contrast between the executive as a reflective planner and the executive as the active operator. A similar contrast is between the proactive versus reactive executive. Research reviewed in Chapter 3 supported the perspective that upper level managers engaged in more long-term planning than lower level managers. However, the time allocation studies reviewed in this chapter indicate little

time devoted to such planning in most executives' schedules. Instead, the pace of executive work is frenetic and relentless, fleeting from topic to topic and often reactive rather than proactive (Hales, 1986). A reconciliation between these two observations has yet to be offered by executive leadership theorists. One possibility is that the perspective of manager as long-term planner is based on an erroneous assumption that such planning requires significant time expenditure during an executive work day. Instead, strategic pictures may emerge over time in pieces that are put together in flashes of insight. Also, this creative process may occur during executive "down time" or after hours (e.g., during exercising periods, relaxing at night, etc.). Alternatively, the perspective of manager as reactive operator also may be based on an erroneous assumption that executives are not operating from a systematic and coherent cognitive framework that ties together their multiple daily activities and gives them meaning. Thus, if these activities were viewed over a long time period, a strategic focus may clearly be evident. Given the empirical data that support both perspectives of executives as long-term strategic planners and short-term reactive managers, theories of executive leadership will need to integrate them into a single conceptual framework.

The behavioral complexity models of leadership provide a useful complement to the conceptual complexity models described in previous chapters. Indeed, several researchers have argued that both cognitive and social or behavioral skills are necessary precursors to successful executive leadership (Boal & Whitehead, 1992; Boyatzis, 1982; Mumford, Zaccaro et al., 1993; Ritchie, 1994). Cognitive skills are utilized in the processes of making sense of organizational environments and establishing organizational directions. Behavioral skills are utilized in the implementation, within complex social domains, of strategies, goals, and tasks that are derived from leader sense making and direction setting. Accordingly, to fully understand executive leadership, both cognitive and social/behavioral complexity need to be the bases for a conceptual model. Such a model is presented in the final chapter of this report.

The approaches to executive leadership described in this and the previous chapters emphasize the operating environments of top organizational executives and the individual characteristics needed to be successful in these settings. The conceptual approaches to be examined in the next four chapters, i.e., strategic decisionmaking and visionary leadership models, describe the *processes* of executive leadership. That is, instead of focusing on what executive leadership is, and what personal qualities characterize successful executives, these models specify how such leaders accomplish their work. For example, key questions from these approaches include (a) how do executive leaders derive a strategy from their boundary-spanning activities; (b) how is strategy made operational; and (c) how do executives empower subordinates so that they adopt a leader's vision as their own and work to achieve it. These and other questions are the focus of the next four chapters. The models described therein provide an importance complement to the approaches presented in Chapters 2-5.

Chapter 6

Strategic Decisionmaking Models of Executive Leadership: Conceptual Review and Evaluation

INTRODUCTION: ORGANIZATIONAL AND ENVIRONMENTAL CO-ALIGNMENT

Executive Leadership and Co-alignment

Models of strategic decisionmaking and management argue that organizational effectiveness emerges from an appropriate fit between the organization and its environment and that the role of senior organizational leaders is to create and manage this fit (Bourgeois, 1985; Lawrence & Lorsch, 1967; Thompson, 1967; Wortman, 1982). Thompson (1967) defined this fit as “co-alignment” and described it as a match between particular organizational elements and environmental factors.

Organizations operate in environments that can be either turbulent or calm regarding rate and pace of change, either rich or scarce in human and material resources, and/or either highly structured or random in its demands and requirements of the organization (Emery & Trist, 1965; Katz & Kahn, 1978). Each of these environmental conditions has significant implications for the organization in terms of which structure, climate, and policy is likely to produce the best fit and therefore result in high performance. Bourgeois (1985) stated, for example, that “In essence, flexible, organic styles and structures befit turbulent, uncertain environments, and bureaucratic, mechanistic, styles are appropriate for stable, predictable environments” (pp. 548-549).

Thompson noted, however, that different environmental elements may change at different rates, contributing significantly to the complexity and difficulty of creating co-alignment. If

some environmental elements are relatively static, their corresponding organizational component(s) may operate with a fairly stable structure, following a constant set of policies. However, other environmental forces that are highly turbulent will require organizational components (i.e., structures and policies) that need to adapt constantly to maintain co-alignment. For example, the personnel resource pool within an organization's environment may be highly enriched and predictably stable over a relatively long period of time. Organizational practices regarding personnel recruitment, acquisition, and training can remain fairly constant for the organization to be adaptive and effective. However, if the organization is operating within an environment with a high rate of technological change, then its personnel as well as production systems may need to adapt at a correspondingly dynamic rate. Note that a differential rate of environment dynamics means differential adaptation and alignment across organizational components.

Executive leaders are tasked with finding, creating, and/or maintaining organization-environment co-alignment (Bourgeois, 1985). In accomplishing co-alignment, Thompson (1967) argued that organizational administrators are responsible for developing and maintaining operational conditions that promote stability and certainty in the short term and flexibility and adaptation in the longer term. He noted that managers at lower organizational levels require crystallized cause and effect relationships that allow predictability regarding their own managerial decisions (called "technical rationality"); the task of upper level organizational administrators is to provide the basis for this rationality. Alternatively, managers at lower levels need to "provide the capacities and the slack (March & Simon, 1958) which allow the organization to make demands on its environment and to take advantage of opportunities afforded by that environment" (Thompson, 1967, p. 150). That is, the organizational practices need to be structured by managers at multiple levels to liberate resources that allow flexibility and adaptation to dynamic organizational conditions.

These themes correspond to several ideas presented in earlier chapters. For example, the manager's provision of technical rationality to lower level organizational subsystems corresponds to the notion from Stratified Systems Theory of the development of a frame of reference that is used to organize and give meaning to collective action at each organizational level. Likewise, the responsibility of executives to find, create, and maintain organization-environment co-alignment reflects the boundary-spanning aspects of senior leadership specified by Katz and Kahn (1978) and included by Mintzberg (1973, 1975) and Quinn (1984, 1988) in their delineations of executive roles. A key difference between these models and the strategic decisionmaking perspectives to be described in this chapter is the emphasis by the latter on executive leadership *processes*. That is, strategic decisionmaking models describe how executives make the strategic decisions that are intended to facilitate organization-environment co-alignment. Thus, processes such as environment scanning and interpretation, the specification of strategic choices, and the selection and implementation of appropriate strategies are the primary foci of these models of executive leadership.

Strategic Management Functions

Wortman (1982) specified five major strategic management functions of the executive. These functions, shown in Figure 6-1, include the analysis of problems and opportunities in the organization's operating environment, the formulation of policies and strategies from this analysis, the implementation and interpretation of these policies within the organization, and the evaluation of policy consequences given organizational conditions. This model contains a significant cybernetic component in that organizational information is processed and filtered into ongoing action (Lord & Maher, 1993). Pearce and Robinson (1995) articulated a similar set of management functions that incorporated the dual components of strategy formulation and strategy implementation. They described the following processes as the crux of strategic management (pp. 3-4):

1. Formulate the company's mission, including broad statements about its purpose, philosophy, and goals.
2. Develop a company profile that reflects its internal conditions and capabilities.
3. Assess the company's external environment, including both the competitive and general contextual factors.
4. Analyze the company's options by matching its resources with the external environment.
5. Identify the most desirable options by evaluating each option in light of the company's mission.
6. Select a set of long-term objectives and grand strategies that will achieve the most desirable options.
7. Develop annual objectives and short-term strategies that are compatible with the selected set of long-term objectives and grand strategies.
8. Implement the strategic choices by means of budgeted resource allocations in which the matching of tasks, people, structures, technologies, and reward systems is emphasized.
9. Evaluate the success of the strategic processes as an input for future decisionmaking.

Although these two sets of strategic management functions (as well as others—see Byars, 1984) differ in terms of some particulars, they both emphasize cognitive and behavioral processes that are the basis of strategic decisionmaking by organizational executives. Accordingly, the nature of executive leadership is described not in terms of requisite role or performance requirements (as in the conceptual and behavioral complexity models), but instead in terms of how such leadership is accomplished in the context of aligning the organization with its environment. Further, the specification of requisite executive characteristics is based on whether they facilitate the conduct of these processes. Thus, these models add important dimensions to the models described in previous chapters.

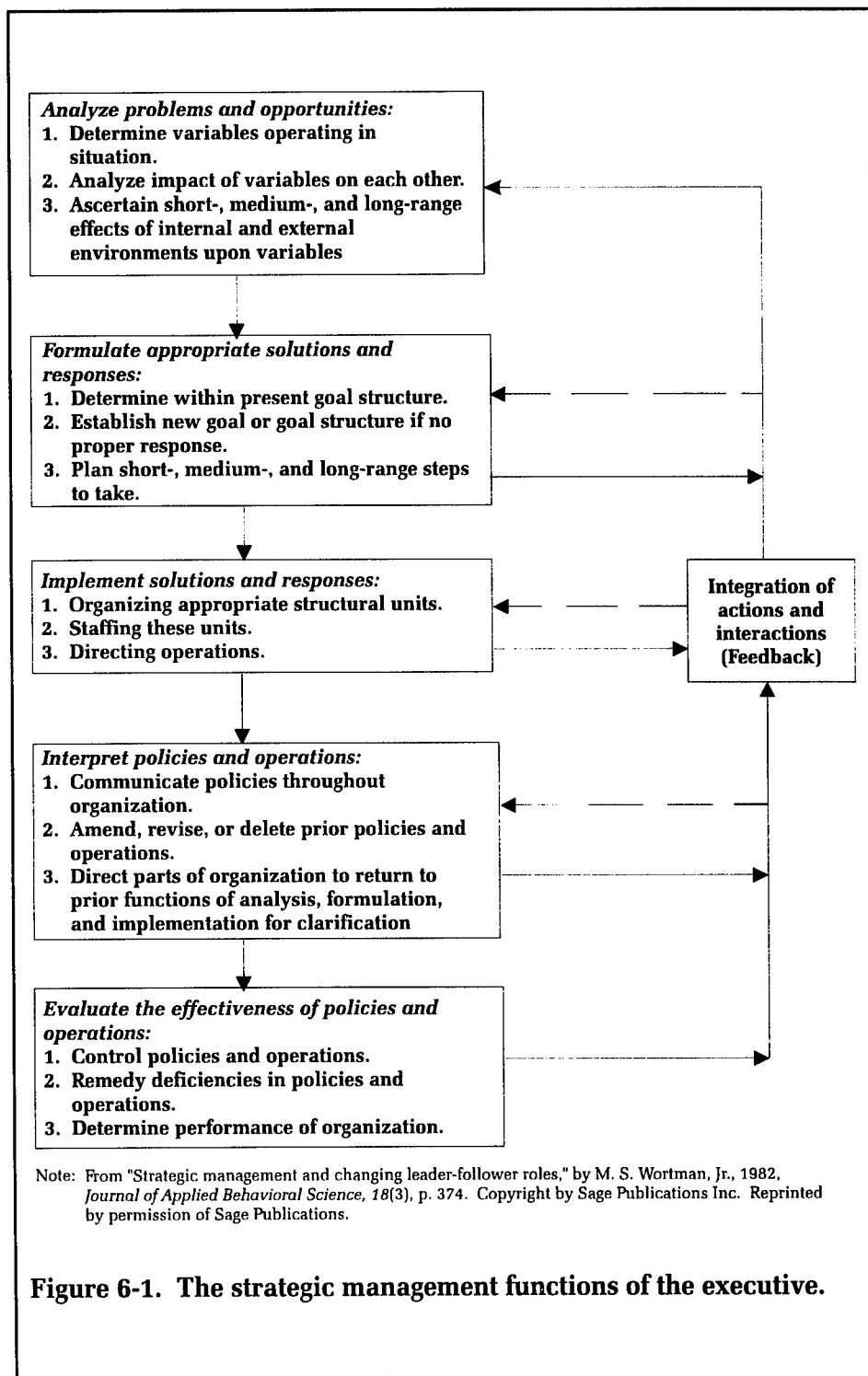


Figure 6-1. The strategic management functions of the executive.

These and other models of strategic decisionmaking and management incorporate two key dimensions of leadership noted by Gardner and Schermerhorn (1992). The first is directional leadership, in which the strategic leader is responsible for establishing a vision, mission, or purpose for organizational action. The second is operational leadership, in which the strategic leader “creates the internal capacity in an organization or group actually to pursue desired direction through sustained, day-to-day performance” (p. 103). Directional leadership provides the context for operational leadership. Thus, senior organizational leaders formulate strategies that reflect a vision or mission for the organization and then create organizational systems to implement these strategies.

Strategic decisionmaking models emphasize the executive as strategy formulator and strategy implementor. The senior leader is described as a reflective thinker as well as a person of action and operation. In particular, the leader as planner is crucial in several models of strategic leadership. However, several researchers have questioned the extent to which senior leaders engage in significant long-term planning in the conduct of their organizational roles. For example, Mintzberg (1975) noted from his observations of CEOs that managers “are strongly oriented to action and dislike reflective activities” (p. 50). Further, Isenberg (1984) stated, “even very senior managers devote most of their attention to the tactics of implementation rather than to the formulation of strategy” (p. 84). Some models of executive succession emphasize the need to match newly hired executives with established organizational strategies (see reviews by Kesner & Sebora, 1994; Szilagyi & Schweiger, 1984). This suggests that the primary purpose of the executive is on implementation and maintenance. However, Gupta (1988) noted that even when the succession process reflects preexisting strategies, patterns of organizational evolution and changes in environmental conditions produce a strong need for strategy change and reformulation. These contrasting perspectives are grounded in arguments about the centrality of executive action in strategy formulation and ultimately as a key determinant of organizational performance.

The Relative Importance of Executives as Primary Determinants of Organizational Effectiveness

Arguments about the senior leader as either (or both) a strategy formulator and strategy implementor have deeper reverberations in the strategic decisionmaking literature. Specifically, this argument resonates with one on the magnitude of importance (or lack thereof) of senior leadership in organizational strategic decisionmaking. Some theorists have adopted an *environmental deterministic* position that argues that organizational action and performance strictly a function of environmental characteristics and contingencies (Aldrich, 1979; Bourgeois, 1984; Hannan & Freeman, 1977; Lawrence & Lorsch, 1967; Romanelli & Tushman, 1988). Others offer an *organizational deterministic* viewpoint suggesting that strategy emerges from prior organizational actions and the existing organizational culture (Miles & Snow, 1978; Starbuck, 1983). The organization as a whole gives rise to strategy. A related perspective, called the *strategic contingency approach*, also stresses a preexisting organizational strategic orientation as being primarily instrumental in executive decisionmaking (Gupta, 1984, 1988). In this perspective, organizational effectiveness emerges from an alignment between executive characteristics and this preexisting orientation within the organization. Thus, executives significantly influence performance in situations where they match the strategic characteristics of the organization. Note that the executive role is relatively minimized in terms of developing or formulating an overall strategic orientation, although Gupta (1988) argues that strategy (re)formulation needs to be considered as part of CEO activity within the contingency perspective.

An alternate approach, called the *strategic choice perspective*, places primary emphasis on the senior leader as a strategy formulator as well as implementor, without delimiting the importance of the organizational environment in constraining the choices available to the leader (Child, 1972; Hambrick, 1989; Hambrick & Mason, 1984). Senior leaders are responsible for environmental analysis and organizational planning. According to this perspective, the analysis and interpretation of

environmental information is significantly influenced by an array of executive characteristics. The single CEO (or the top management team) becomes a crucial arbiter of organizational strategies. That is, contrary to the view of more deterministic approaches, “top executives matter” (Hambrick & Mason, 1984, p. 194). Differences among strategic choice, strategic contingency, and more deterministic models regarding the importance assigned to senior executives will be examined in more detail in the next section.

The focus of these various situational decisionmaking and management approaches is typically centered solely on managers and executives at *top* organizational levels instead of differences across levels. For example, Hambrick (1989, p. 6) writes:

The study of strategic leadership focuses on the people who have overall responsibility for the organization. . . . I prefer “strategic leadership” because it connotes management of an overall enterprise, not just a small part; and it implies substantive decision-making responsibilities, not only the interpersonal and social dimensions typically associated with the word “leadership” alone.

Changes in the nature of leadership in higher versus lower organizational levels are likely to lie in operational responsibility and discretion. Senior leaders have responsibility for making decisions about the organization as a whole and integrating various components of the organization to create coordinated collective responses. They also have significant discretion about how they can structure the organization, although environmental contingencies will play a large role in constraining the range of choices available to the senior leader. Leaders at lower organizational levels are more involved in direct subordinate influence and have responsibility for decision implementation. However, their discretion over the nature of these decisions is limited, given that organizational directions are established by senior leaders.

Drenth and Koopman (1992) make a similar distinction between junior and senior leaders in terms of strategic

decisionmaking. Specifically, senior leaders are responsible for strategic and policy decisions that have medium- and long-term implications. Such decisions are often ill-defined, unstructured, and ambiguous. Drenth and Koopman differentiated such decisions further into strategic decisions that were relevant for the future of the organization and tactical decisions that were related to organizational control systems or to the implementation of policy. Junior leaders make operational decisions that reflect a short-term perspective, are relatively structured, and are concerned with more day-to-day organizational operations. Because, top executives have the primary responsibility for directional or policymaking decisions, models of strategic choice and planning limit their focus to these individuals.

In sum, strategic management models of executive leadership emphasize organizational decisionmaking and the role of top leaders in making, guiding, and implementing strategic decisions. Models in this perspective, however, differ significantly in terms of the causality regarding organizational effectiveness to be attributed to senior leadership. Deterministic models place the least emphasis on leadership, while strategic choice models place the strongest emphasis. These differing approaches are examined in more detail in the following sections. The emerging literature regarding the nature and influence of top management teams is also described in terms of understanding the process of executive decisionmaking.

THE NATURE OF ORGANIZATIONAL LEADERSHIP

Deterministic and Strategic Contingency Models of Executive Leadership

Environmental deterministic models. Deterministic models of organizational strategy argue that strategic choices are determined by the organization's environmental conditions. One such approach, *resource dependence theory* (Pfeffer & Salancik, 1978), proposes that organizational actions are constrained by the availability of necessary resources in the extant environment

and the organization's degree of dependence upon these resources. Organizational dependence is based on how critical the resource is for organizational functioning, the discretionary power accrued to suppliers regarding access and regulation of resources, and the number of competitive suppliers in the environment. When faced with high resource dependence, organizations attempt to adapt by acquiring greater control over resource suppliers (i.e., through mergers) or by diversifying organizational outputs to avoid placing the eggs of organizational survival into a single basket. The role of senior organizational managers, then, is primarily a reactive one in which organizational actions are determined by resource munificence or scarcity. Leaders attempt to broker conditions favoring resource control; however, they remain at the mercy of an environment that, if highly turbulent, can render those conditions obsolete very quickly.

Population ecology models of organizations (Hannan & Freeman, 1977) go further by ignoring organizational attempts to adapt and gain control over resource environments. Instead, their emphasis is on populations of organizations that occupy an environmental niche. Characteristics of the environment determine which organizational form (defined as organizational structure and institutionalized response patterns) is likely to survive and which will fail. Hannan and Freeman (1977) argued that organizational forms are not likely to change because of inertial forces related to political constituencies that have a stake in the status quo, sunk costs in present operations, and the high ambiguity and risk associated with the unknown dimensions of fundamental organizational change. Thus, in this perspective, managers have little or no role in organizational effectiveness except to ride the forces of environmental dynamics.

Organizational deterministic models. These approaches remove the impetus for strategic choices from senior organizational leaders and place it in the organization's environment. Other approaches that reflect determinism retain it within the organization, but place it on the organization as a whole, not necessarily on top executives. Thus, strategy emerges from collective organizational actions that in turn reflect a

cultural predisposition (Starbuck, 1983). The role of senior leaders is (a) to provide post hoc meaning and understanding to organizational actions (Cowan, Foil, & Walsh, 1992) and (b) to facilitate the implementation of strategic choices. Miles and Snow (1978) offered a classification of four organizational types that yield different generic strategies for organization-environment interactions. *Defenders* are organizations that stress efficiency and product stability. *Prospector* organizations emphasize product innovation and development. *Analyzers* produce and market products developed by others while *reactor* organizations tail the industry in adopting new products. Although Lord and Maher (1993) used this classification to describe types of strategic leaders, these categories were intended to describe stable organizational patterns of action. Thus, strategic choices reflect these organizational orientations rather than the predilections of top organizational executives.

Gupta's (1984, 1988) *strategic contingency approach* is an organizational deterministic perspective that emphasizes the primary role of top organizational executives as strategic implementors. Organizational effectiveness is derived from a match between the strategic orientation of the organization and the individual characteristics of its top executives. Thus, to extend Miles and Snow's classification, organizations that retain a prospecting strategy are more likely to be successful with executives who are risk takers than those who are risk averse. Alternatively, organizations that have a defensive posture may thrive under risk-aversive executives. Gupta and Govindarajan (1984) offered a similar argument for organizations that adopt a *build* versus *harvest* strategy. A build strategy focuses on increasing and maximizing a company's market share, while a harvest strategy emphasizes maximization of short-term profits and cash flow. Gupta and Govindarajan argued that executives who have a high risk-taking propensity and tolerance for ambiguity will facilitate company performance in companies with a build strategy, but hinder it in those with a harvest strategy.

This analysis emphasizes organizational strategic contingencies rather than environmental contingencies. Organizational effectiveness is based on an alignment between managerial characteristics and organizational strategic orientation. However, as suggested by the deterministic models, organizations are likely to suffer if their strategies are not consistent with organizational conditions. This is not to say that only one strategy is vital for success; multiple strategic choices may be appropriate or suitable within a common environmental framework. Thus, strategic contingencies are not necessarily fully congruent with environmental contingencies, although the categories of acceptable choices are likely to be constrained by such contingencies. This has lead Gupta (1988) to suggest that "accordingly, an organization's environmental context has the potential to exert a direct contingency impact on the composition and characteristics of executive leadership in addition to an indirect impact via the imposition of constraints on strategic choice" (p. 164).

The strategic contingency approach defines organizational strategy as a determinant, rather than a consequence of executive selection. Gupta (1988, p. 160) noted:

By definition, the notion that matching executives to organizational strategies enhances organizational performance assumes that strategies get specified prior to executive selection; in other words, for most CEOs, strategies are assumed to be a given and the CEO's primary task is assumed to consist of the implementation rather than formulation of strategies.

Gupta also observed, however, that periods of organizational evolutionary change that often coincide with CEO change (Virany, Tushman, & Romanelli, 1985); further, periods of strategic stability in organizations can be altered by sudden and significant strategic change. This suggests that CEOs may have a role in strategic formulation during these periods. However, it is not clear that it is the executive that prompts the impetus for organizational change; instead she or her may be in an advantageous position of capitalizing on forces impelling change and influencing the direction of that change. Gupta offered three

scenarios involving CEO tenure and organizational strategy. Type I scenarios involve CEOs as strategic formulators and reflects the approach of Hambrick and Mason (1984) that is described below as a strategic choice model. Organizational strategies are defined as *consequences* of executive characteristics. Type II scenarios reflect the more traditional strategic contingency model and define executives as primarily involved in strategic implementation. The influence of executive characteristics on organizational performance is moderated by the organization's strategic orientation. Type III scenarios view executives as both strategy formulators and implementors. Thus, in these latter scenarios, executive characteristics can have both direct and moderated influences on organizational performance. Gupta argued for a need to disentangle these different scenarios in research on executive leadership and organizational strategic management.

Rational/Normative Models of Executive Leadership

While deterministic models of strategic management minimize the proactive role of senior leaders, rational/normative models suggest that such leaders are the central focus of strategic decisionmaking. Their responsibility is to decide on organizational directions based on (a) a careful analysis of environmental contingencies and organizational strengths and weaknesses, and (b) an application of objective criteria to strategic choices to determine the most appropriate organizational strategy (Bourgeois, 1984, 1985; Hitt & Tyler, 1991; Pearce, 1981). This process is grounded in a rational and comprehensive analysis of strategic alternatives to determine optional organizational choices.

Strategic leaders are viewed as rational and optimizing informational processors. Leaders are expected to analyze an array of critical information that points to a best-fitting strategy for the organization. This suggests a slow, deliberative process that can be quite time consuming. The question arises whether such a decisionmaking style is appropriate in a rapidly changing or "high velocity" environment (Bourgeois & Eisenhardt, 1988) in which time is short and critical information may be lacking.

Some theorists have argued that such conditions produce an orientation toward satisficing strategies instead of those that maximize organizational outcomes (Cyert & March, 1963; Simon, 1957). Managers use a number of cognitive heuristics to reduce information processing times in situations of high information load and complexity. Strategic decisionmaking that uses rational and comprehensive information processing is reserved for structured and bureaucratic organizations operating in relatively stable environments (Fredrickson & Mitchell, 1984).

Bourgeois and Eisenhardt (1988) argued alternatively that comprehensive and rational decision processes are linked to organizational effectiveness even in high-velocity environments. They examined the strategies, performances, and top executives of four microcomputer companies. They also examined the decisionmaking processes that produced a “strategic repositioning or redirection” of each firm (p. 819). Their analyses of these firms suggested that in rapidly changing environments, executives of the more effective companies still engaged in thorough and formal strategic planning. For example, as opposed to the firms with declining or mediocre performance, executives in the firm with increasing performance were described as having “(1) analyzed their industry, (2) conducted a competitor analysis, (3) identified the firm’s strengths and weaknesses, (4) identified the target market, and (5) developed the strategy” (p. 827). These actions are viewed as necessary, particularly in a high-velocity environment, for company executives to gain a sense of control and order.

Rational/normative models place greater emphasis on the executive leader as the focal point of organizational strategy development than the deterministic models described earlier. However, strategic decisions are still determined largely by organizational characteristics and environmental contingencies. Senior leaders add only their information processing capacities and their ability to conduct the comprehensive strategic decision processes and planning prescribed by rational/normative models of strategy development. The perspective described in the next section highlights other characteristics of executives such as

values and personality that shape how they make strategic decisions.

Strategic Choice Models of Strategic Leadership

Strategic choice models accept the premises of previously described models; i.e., (a) the influential role of organizational environments in strategic decisionmaking, and (b) the central role of strategic leaders as information processors. However, such models also argue that psychological and other individual characteristics of top organizational executives will influence the interpretations and conclusions they make from environmental information, the strategies they derive from this information processing, and hence, subsequent organizational action and effectiveness (Child, 1972; Hambrick, 1989; Hambrick & Mason, 1984)

In describing one such perspective known as the *upper echelons model*, Hambrick (1989, p. 5) noted:

In the face of the complex, multitudinous, and ambiguous information that typifies the top management task, no two strategists will identify the same array of options for the firm; they will rarely prefer the same options; if, by remote chance, they were to pick the same options, they almost certainly would not implement them identically. Biases, blinders, egos, aptitudes, experiences, fatigue, and other human factors in the executive ranks greatly affect what happens to companies.

Strategic choice theories view senior organizational leaders as both strategy formulators and strategy implementors. Such leaders are expected to establish internal organizational structures and mechanisms that reflect their strategic direction and facilitate the organization's adaptation to the environment. Further, chief executives are expected to attend to the environment, both in its current form and to its likely or expected direction. Their interpretation of the environment produces the framework for actions that (hopefully) align the organization with current and emerging environmental forces.

In general, these prescriptions for action and the nature of senior leadership work are consistent with those of rational/normative models of strategic management. The difference lies, however, in the nature of environmental processing and interpretation by executives. While rational/normative models suggest a careful and comprehensive analysis of the environment by senior leaders, choice models accept the “bounded rationality” perspective of information processing under less than optimal conditions (Cyert & March, 1963; Simon, 1957). They argue that the environment is highly complex and too information-rich for the senior leader to fully comprehend all possible outcomes (Hambrick & Mason, 1984). Instead, they are selective in what they perceive and think about in the organization’s environment.

Hambrick and Mason (1984) argued that the situation confronting the senior leader, defined as “all potential environmental and organizational stimuli” (p. 195), is screened by his or her cognitive base and values. Cognitive bases refer to the leader’s cognitive models and beliefs that are used to apply order and structure to a chaotic information array. After March and Simon (1958), Hambrick and Mason defined the leader’s cognitive base as including (p. 195):

1. knowledge or assumptions about future events,
2. knowledge of alternatives, and
3. knowledge of consequences attached to alternatives.

Donaldson and Lorsch (1983) outlined a similar set of cognitive constraints on executive decisionmaking. They argued that senior leaders analyze environmental complexity by drawing on a set of beliefs developed from their own experiences and from shared beliefs acquired from predecessors. These beliefs transform environmental uncertainty into more understandable and familiar terms. Donaldson and Lorsch defined three sets of executive beliefs. The first refers to beliefs about the organization’s competence, that is, “what the company’s economic, human, and technical resources can—and cannot—accomplish: the kinds of economic activity the firm should undertake and how this activity is to be conducted”

(p. 80). The second belief system refers to understandings and perceptions of the organization's financial self-sufficiency, or its relative independence from resource suppliers. The third set of beliefs include the leader's understanding and judgement about an organization's ability and propensity to undertake risks. For Donaldson and Lorsch, these beliefs "act as a filter through which management perceives the realities facing its firm" (p. 79).

Hambrick and Mason (1984) proposed that executive values also act as an important influence on executive strategic choices. After a review of the literature on values, Hambrick and Brandon (1988) posited six values that can influence executive behavior. These values, shown in Table 6-1 along with their corresponding definitions, influence executive action in two ways. First, they predispose the executive to specific actions. This predisposition or "behavioral channeling" occurs in spite of facts and information regarding more appropriate actions and is more likely to result from strongly held values. The second influence

Table 6-1. Executive Values

Dimensions	Values
Collectivism:	to value the wholeness of humankind and of social systems; regard and respect for all people.
Duty:	to value the integrity of reciprocal relationships; obligation and loyalty.
Rationality:	to value fact-based, emotion-free decisions and actions.
Novelty:	to value change, the new, the different.
Materialism:	to value wealth and pleasing possessions.
Power:	to value control of situations and people.

Note: Adapted from text (p. 14) in "Executive Values," by D. C. Hambrick & Brandon, in *Strategic Management Policy and Planning*, Vol. 2, *The Executive Effect: Concepts and Methods for Studying Top Managers*, edited by D. C. Hambrick (1988), Greenwich, CT: JAI Press. Copyright 1988 by JAI Press Inc. Adapted with permission from JAI Press Inc.

of values is to screen environmental stimuli, selecting information that is likely to be supportive of valued orientations. Hambrick and Brandon (1988) noted that more complex and ambiguous stimuli result in greater perceptual screening effects of values than behavioral channeling.

Executive beliefs and values narrow and limit the executive's field of vision regarding incoming environmental stimuli. That is, the leader's attention will be drawn only to parts of the environmental array that are congruent with the predisposing orientation produced by *a priori* cognitive biases and values. Further, of this information, a subset is selectively perceived and an even smaller subset is interpreted. This narrowing field of attention and assignment of meaning dictates the shape of subsequent managerial judgements and eventual strategic choices. Thus, rather than a comprehensive and rational process, strategic choice becomes a process of "bounded rationality" reflecting the idiosyncracies and personal orientations of top organizational decisionmakers (Hambrick & Mason, 1984).

These arguments place significant weight on the perceptual filters used by organizational executives. Such filters can improve the understanding executives have of a complex and ambiguous environment (Starbuck & Milliken, 1988). However, they can also reduce the accuracy of information acquired by the executive or focus executive attention on less relevant and meaningless parts of the environment. Starbuck and Milliken described two general types of perceptual filtering that can produce distorted strategic processes. One type reflects distortions in environmental scanning or in "noticing" (i.e., "where to look and what to see," p. 43). The other refers to distortions as sense making and the assignment of meaning. The latter type of perceptual filtering includes distortions in framing an issue, predicting the consequences of an issue, and in attributing the causes of issues and outcomes. Starbuck and Milliken noted that such distortions and errors are not necessarily fatal in executive decisionmaking. Indeed, they can be helpful when (a) they help executives acquire some understanding and therefore control over a chaotic environment,

and (b) they lead executives to pursue objectives that by more rational/normative criteria would be considered unattainable, but are achieved because of executive energy and self-confidence.

Starbuck & Milliken's (1988) classification suggests that a critical aspect of strategic decisionmaking by senior leaders is the meaning they attribute to information gained from environmental scanning activities (see also Bluedorn, Johnson, Cartwright, & Barringer, 1994). Dutton and Jackson (1987; Jackson & Dutton, 1988) proposed two fundamental categories of meaning that can be assigned by senior executives to perceived environmental events—that of “opportunity” or “threat.” Events that are interpreted as opportunistic are perceived as positive ones in which organizational gain is possible and a significant amount of control can be exerted by the organization over the event. Threatening events are those that are perceived as negative ones entailing significant potential loss and being relatively uncontrollable.

According to Dutton and Jackson (1987), the labeling of an event as threatening or opportunistic has specific implications for organizational actions. They proposed, for example, that when issues are labeled as opportunities, there will be greater involvement by organizational members in the resolution of the issue and that involvement will extend to lower organizational levels than when issues are labeled as threats. Further, when issues are labeled as threats, executive responses are more likely to be directed toward the internal operating environment of the organization in an effort to increase perceived control over the event and reduce its potential for loss. Alternatively, when an event is perceived as opportunistic, senior leaders are more likely to respond proactively to change the external environment in a manner that reflects increased perceptions of control and gain. Finally, because decisionmakers react more strongly to potential loss than to potential gain, perceived threats will engender more large-scale actions than perceived opportunities. Taken together, these postulates indicate the criticality associated with the meaning executives assign to environmental events. How the personal characteristics of

executives influence the assignment of such meaning becomes a key question in strategic-choice theories.

Top Management Teams

During the past 15 years, a substantial body of research has burgeoned on the topic of top management teams. Appendix B presents an annotated bibliography of studies in this literature (Zukin, 1996). This appendix also contains a table summarizing four basic characteristics of this research: type of study (theoretical or empirical); methodology used in empirical studies (experimental, correlational, survey, interview, and archival); number of studies that examined top management team characteristics other than demographics; and the type of industry reflected in the sample. The central premise of this research is that the activities of executive leadership are not the domain of a single individual, but rather are dispersed or shared by executive managers aggregated at the top of the organization. Hambrick (1994, p. 175) indicated that:

The top group operates at the boundary of the organization and its environment (Mintzberg, 1973). It must monitor and interpret external events and trends, deal with external constituencies (ranging from security analysts to key distributors), and also formulate, communicate, and monitor the organization's responses to the environment.

Top management teams then have the boundary-spanning, direction-setting, and strategic implementation responsibilities that at times have been presented in this report as typically the province of a single top executive. An oft-cited advantage to a team-based approach to executive leadership is that the organizational environment and corresponding sense-making demands are too complex for any single individual. However, a collection of executives may be able to apply a greater reservoir of cognitive resources to the scanning, interpretation, and construction of meaning from complex environmental stimuli (Jacobs & Jaques, 1987). These information processing activities are facilitated when the team authority structure is fairly

informal and characterized by high levels of participation and interaction (Thomas & McDaniel, 1990). Jacobs and Jaques (1987) noted that when authority lines are formal and rigid, subordinates tend not to contradict the prevailing perspective or frame of reference established by the CEO; thus, scanning and interpretation of environmental stimuli are likely to be limited by this perspective. Alternatively, when authority norms are relaxed, multiple perspectives can come into play and create a more adaptive frame of reference for the organization as a whole.

Top management team demographics. The perspective of an executive team as a more adaptive and comprehensive information-processing mechanism leads to the prediction that heterogeneously composed teams are likely to be more successful than homogeneously composed teams. In the top management team literature, team composition and demography have been examined in terms of four key variables: organizational and team tenure, age, functional and occupational specialties, and educational backgrounds (Bantel, 1993; Hambrick, 1994; Murray, 1989). The information processing capacity of the top management team is defined in terms of the level of resources available to the team and the diversity of these resources. High educational levels and broad functional experiences bring more information-processing capacity to the team (Bantel, 1993; Bantel & Jackson, 1989; Wiersema & Bantel, 1992). Some researchers have proposed that the average age of the top management team was related to the level of cognitive resources available to the team (Taylor, 1975). This effect, however, may be attributable to a likely association between age and amounts of functional experience. That is, the effects of age on the team's resource capacity may be spurious, due to its correlation with other predictors of team cognitive capacities. Also, other researchers have argued that younger executives bring stronger cognitive skills to team strategic decisionmaking (Bantel & Jackson, 1989).

Another effect of the average age of team executives that has been cited by several researchers has been on the team's propensity for risk taking and for proposing strategic changes (Bantel & Jackson, 1989; Hambrick & Mason, 1984; Wiersema & Bantel, 1992). In essence, teams with, on average, younger

executives are more likely to pursue innovative and risky strategies than older teams. Reasons offered for this difference include (a) some cognitive abilities may decay over time; (b) younger executives have more recent educations and therefore more superior technical knowledge; (c) older executives are more invested in and therefore committed to the organizational status quo; (d) younger executives have more favorable attitudes regarding risk taking; and (e) older executives are more likely to be concerned with career and financial security than younger executives and therefore are less likely to want their personal status threatened (Bantel & Jackson, 1989; Hambrick & Mason, 1984; Wiersema & Bantel, 1992).

Several researchers have argued that team heterogeneity with respect to functional and educational background would influence team information processing by increasing the likelihood that multiple and diverse strategic perspectives would emerge during team interactions (Bantel, 1993; Wiersema & Bantel, 1992). This effect becomes more important as the problems confronting the top executive team become more ill-defined and novel. Because turbulent environments are likely to give rise to such problems, Hambrick and Mason (1984) have argued that team heterogeneity with respect to functional expertise, experience, and education is positively associated with organizational profitability in such circumstances; however, team *homogeneity* would be positively related to organizational growth in more stable environments. Researchers have also argued that homogeneity in age and organizational tenure within the executive team will result in a greater ability to reach consensus more quickly about strategic issues and therefore greater strategic clarity for the team (Bantel, 1993; Hambrick & Mason, 1984; Murray, 1989). The proposed effects of age heterogeneity on team innovation and effectiveness, however, are more complex (Bantel & Jackson, 1989; Wiersema & Bantel, 1992). Diversity in the age of team members is likely to contribute to a corresponding diversity in information, ideas, and perspectives available to the team. Conversely, age heterogeneity may adversely influence team cohesion, impairing team processes and therefore team effectiveness. Recent empirical studies have begun to disentangle these effects of top management team

heterogeneity (e.g., Bantel, 1993; Daboub, Rasheed, Priem, & Gray, 1995; Priem, 1990; Wiersema & Bantel, 1992).

Top management team behavioral integration. Another important dimension of top management teams is their social dynamics and processes. Hambrick (1994) recently suggested that such dynamics represent a fundamental way of distinguishing the nature of top management groups. Specifically, executive groups can be differentiated with respect to their degree of *behavioral integration*. According to Hambrick (1994, pp. 188-189):

Behavioral integration is the degree to which the group engages in mutual and collective interaction. In the context of top management groups, behavioral integration has three major elements: (1) quantity and quality (richness, timeliness, accuracy) of information exchange, (2) collaborative behavior, and (3) joint decision making. Thus, behavioral integration is a “meta-construct” for describing various elements of group process—more encompassing than only amount of internal communication (Katz, 1982), communication quality (O'Reilly, Snyder, & Boothe, 1993), or collaboration.

Hambrick's notion of behavioral integration is an important lens through which the investigation of top management team/group¹ processes ought to be examined. High behavioral integration carries with it both the advantages (e.g., more information diversity, greater commitment to action) and disadvantages (slower action and reaction, process loss; Steiner, 1972), greater potential for conflict) of collective processes. Thus, most models of top management team/group variables,

¹ Several researchers have distinguished by “teams” and “groups” by arguing that teams are more interdependent and have a stronger collective identity than groups (Hambrick, 1994; Morgan, Glickman, Woodard, Blaiwes, & Salas, 1986; Salas, Dickinson, Converse, & Tannenbaum, 1992). Hambrick (1994) argued that researchers who examine top management collectives refer not only to tightly integrated teams, but also to more loose conglomerations of managers. Accordingly, he suggested that the term *top management group* is “a less presumptuous label” than the term *top management team* (p. 173).

processes, and outcomes (e.g., Bantel, 1983; Smith, Smith, Olian, Sims, O'Bannon, & Scully, 1994; Hambrick & Mason, 1984; Wiersema & Bantel, 1992) are likely to be significantly moderated by the level of behavioral integration in the team.

Hambrick (1994) proposed that behavioral integration is influenced by the organization's size, the breadth of its domain, its characteristic business strategy (e.g., *defender* vs. *prospector*; Miles & Snow, 1978), its level of organizational slack, and the dynamism of its operating environment. In turn, the level of behavioral integration within the top management group determines its shared awareness and interpretation of the organization's environment, its pursuit of organization-wide change in response to environmental change, the speed of strategic implementation, and the deterioration of organizational performance in response to change. When behavioral integration is low, organizational coordination begins to decay as department executives chart more independent actions. Accordingly, Hambrick (1994) argued that "organizations lead by TMGs lacking in behavioral integration are at a disadvantage in responding to major environmental shifts" (p. 200). Hambrick's article highlights the importance of the dynamics of top management teams, a theme that has been the focus of several recent studies (e.g., Amason, 1996; Smith et al., 1994).

Summary. The body of conceptual and empirical research on the nature of top management teams that has emerged during the past 10 to 15 years (see the annotated bibliography in Appendix B) represents an important extension of the primarily person-centered focus that has dominated prior research on executive leadership. Many researchers have argued that there are limits on single individuals in terms of their information processing and other cognitive capacities required for organizational sense making, particularly within complex and turbulent environments (Cyert & March, 1963; Jacobs & Jaques, 1987; March & Simon, 1958). Executive teams, particularly those with high behavioral integration, can presumably employ a larger pool of cognitive resources to the complex tasks required of top organizational management. Alternatively, dysfunctional team processes may interfere with other executive performance

requirements (cf., Steiner, 1972). Thus, the notion of top management teams/groups represents a rich and complex extension of executive leadership models. This extension should prove to be a productive one if knowledge from group dynamics research is combined with current understandings of executive leadership processes and performance requirements.

STRATEGIC DECISIONMAKING AND REQUISITE EXECUTIVE CHARACTERISTICS

Strategic choice models of senior leadership define the work of top organizational leaders as strategy formulation and strategy implementation. When formulating strategy, top leaders are often required to interact within complex and turbulent environments. Further, the strategies they develop need to be innovative to significantly position the organization in the best alignment with such environments. When implementing strategy, senior leaders need to interact with and coordinate multiple organizational subsystems and constituencies. Also, strategies that are innovative need to be “sold” to lower level leaders who are accustomed to and comfortable with the status quo.

These requirements set the parameters for executive characteristics that promote effective strategic decisionmaking. That is, such characteristics should enhance environmental analysis and planning, innovative decisionmaking, the selling of selected strategies to subordinates, the coordination of organizational systems when implementing strategy, and other executive strategic management functions (see Figure 6-1). Several executive characteristics have been proposed by strategic management theorists as facilitating these functions. These characteristics are summarized in Table 6-2 and described in the following sections.

Demographic Characteristics

Hambrick and Mason (1984) suggested that observable characteristics and background data of executives are critical influences on strategic decisionmaking. They specify seven key

Table 6-2. Executive Characteristics Proposed as Being Associated With Effective Organizational Strategic Decisionmaking

1. Demographics:	Age Functional background Career experience Education Socioeconomic roots Financial position Team characteristics
2. Cognitive Abilities:	Inductive reasoning Deductive reasoning Creativity Cognitive complexity
3. Expertise and Knowledge:	General management Output expertise Throughput expertise
4. Motivation Characteristics:	Need for achievement Self-efficacy
5. Personality Characteristics:	Locus of control Risk propensity Flexibility

demographic characteristics: age, functional track, career experiences, education, socioeconomic roots, financial position, and executive team characteristics. Functional track refers to functions associated with the output processes of the organization (e.g., marketing, sales, and research and development), the throughput processes (e.g., production, accounting), and regulatory, boundary-spanning processes (called "peripheral functions" by Hambrick & Mason, e.g., law, finance). Financial position refers to percent of stock ownership of top executives and/or the amount of income they derive from salaries, bonuses, etc. Team characteristics reflect the heterogeneity and diversity among the top management team.

Several of these observable characteristics are actually markers of psychological influences. For example, Hambrick and Mason proposed that organizations led by younger executives are more likely to pursue unconventional and novel strategies than organizations led by older executives. Here, age reflects differences in propensity for risk taking. Likewise, functional background, career experiences, and education are indicators of the executive's level of knowledge and expertise. Socioeconomic status and financial position were suggested by Hambrick and Mason as reflecting motivational orientations of achievement, recognition, and high aspirations. Finally, team homogeneity and diversity was linked with conformity dynamics among top executives and their responsiveness to a turbulent environment. Thus, while demographic characteristics are prominently cited in the literature as critical influences on executive decisionmaking, their effects likely reflect the influence of other psychological and less observable characteristics.

Cognitive Abilities

The requirements of executive strategy formulation and implementation demand a significant amount of cognitive ability. Rational/deterministic models of strategic leadership argue that senior leaders comprehensively scan organizational environments and through extensive analyses of acquired information determine appropriate strategies. This suggests that senior leaders need significant inductive and deductive reasoning skills. Hitt and Tyler (1991) argued that senior managers also required greater cognitive complexity, defined as the structural complexity and degree of differentiation in an individual's cognitive system (Schneir, 1979). Cognitive complexity helps executives perceive multiple strategic options, understand the various characteristics of each option, and discern the range of outcomes that each option can create under altering environmental circumstances.

Because of the complexity of organizational environments, top executives often confront a series of novel, ill-defined problems and scenarios (Mumford, Zaccaro et al., 1993).

Effective organizational responses may require that they develop innovative and unique solutions. Thus, another critical cognitive ability that influences executive strategy making is creativity and divergent thinking skills. Leidecker, Bruno, and Yanow (1988) noted, for example, that in the founding, entrepreneurial stages of organizations, CEOs needed to have, among other skills, creative problem solving skills.

Expertise and Knowledge

Hambrick and Mason (1984) noted that knowledge of different “output” and “throughput” functional areas was related to the focus and quality of executive decisionmaking (see also Hambrick, 1981b). According to Hambrick and Mason (p. 199),

“Output functions”—marketing, sales, and product R&D—emphasize growth and the search for new domain opportunities and are responsible for monitoring and adjusting products and markets. “Throughput functions”—production, process engineering, and accounting—work at improving the efficiency of the transformation process.

Hambrick and Mason proposed that experience with output organizational functions was positively associated with organizational growth. Further, they suggested that in stable environments, experience in throughput processes was associated with profitability, while in turbulent environments, output functional experience was more critical. Some researchers have argued that executives tend to bring their own functional perspective to strategic decisionmaking (Dearborn & Simon, 1958). However, Hitt and Tyler (1991) noted that executives typically have a range of functional experiences. Thus, their beliefs and knowledge structures represent an integration of these experiences. Similarly, Hoffman and Hegarty (1993) proposed that a range of different expertise was associated with innovative decisionmaking, including general management; expertise regarding marketing and product research and development; and expertise regarding finance, personnel management, and production.

Motivational Characteristics

Strategic decisionmaking requires energy and high motivation. Accordingly, several researchers have proposed that successful strategic leadership was associated with high levels of need for achievement. High achievement needs are associated with a personal striving to accomplish difficult but attainable goals (McClelland, 1961). Accordingly, Miller and Toulouse (1986) argued that executives with a high need for achievement will pursue broad strategies and be very analytical, proactive, and adoptive to a long-term perspective in the development of these strategies. However, such executives were also proposed to be risk averse, because, as risk increases, the chances for successful achievement declined.

Cowan et al. (1992) related executive self-efficacy to the quality of organizational strategy formulation and implementation. Self-efficacy refers to an executive's perceptions of his or her competence and capabilities to bring about desired outcomes (Bandura, 1986; Wood & Bandura, 1989). High self-efficacy leads to persistence in the face of challenge and the willingness to confront difficult tasks (Bandura, 1986; Locke & Latham, 1990). High self-efficacy is also associated with strong perceived control. Because opportunistic events are interpreted as more controllable (Dutton & Jackson, 1987), executives with high self-efficacy are more likely to perceive environmental events as opportunities. However, their strong sense of competence also means that they may better handle threatening events than executives with low self-efficacy.

Personality Characteristics

A prominent dispositional quality of executives that has been associated with strategic decisionmaking is locus of control (Miller, Kets de Vries, & Toulouse, 1982). Locus of control refers to the amount of control an executive believes that she or he has over situations and events (Rotter, 1966). Those with an internal locus of control believe they have substantial control over events and that their efforts can influence their outcomes. An external locus of control is associated with beliefs of uncontrollability and

that outcomes are a function of luck or fate. These differences in control orientations have significant implications for an executive's desire to pursue innovative and risky strategies. For example, Miller et al. (1982, p. 239) noted that

because internal executives are more convinced of their abilities to influence their environments, they proceed to do so. Confidence in one's potential impact breeds actions. In contrast, external executives are likely to be more passive because they believe events to be beyond their control.

Miller et al. (1982) argued that because executives with an internal locus of control are more action-oriented and better able to handle stress, they will more likely develop strategies for their organization that are more innovative and risky. Further, such executives are likely to be more proactive and use a longer time horizon in their planning.

Risk propensity is also a significant executive characteristic associated with strategic and innovative decisionmaking (Baird & Thomas, 1985; Hitt & Tyler, 1991). Executives with a strong risk orientation are more likely to attend to ambiguous and threatening decision options in the organization's environment, use a narrower range of criteria to evaluate these options, and incorporate them into organizational strategies (Kogan & Wallach, 1964; Williams, 1965) than executives with a low-risk orientation. Also, Howell and Higgins (1990) proposed that risk-taking propensity was significantly associated with entrepreneurs and champions of innovation.

A critical quality in organizational strategy development is adaptability to a dynamic and volatile environment. Accordingly, Miller and Toulouse (1986) argued that flexibility was an important characteristics of organizational executives. Executives high in flexibility are likely to react more favorably to changing environmental conditions and have more adaptive strategies. Such flexibility should assist top executives in working with different kinds of environmental information. Further, it can facilitate their efforts to persuade multiple

constituencies in the organization of their proposed direction and mission (Zaccaro, Gilbert et al., 1991).

MEASUREMENT ISSUES

Strategic choice theorists have not attended systematically to measurement issues regarding senior leadership. Most empirical studies use established measures of executive characteristics (e.g., Howell & Higgins, 1990; Miller & Toulouse, 1986; Miller et al., 1982). Outcome measures are typically organization-level outcomes, while measures of environmental characteristics and organizational structure serve as moderator or predictor variables (e.g., Khan & Manopichetwattana, 1989; Miller & Toulouse, 1986).

However, a critical focus of measurement in this domain is the assessment of environmental scanning activities. All models of senior leadership and strategic management highlight the importance of leader activities in scanning and assessing the organizational environment. Such activities are the basis for subsequent effective executive strategy development and long-term planning. Accordingly, the assessment of environment scanning is a central issue in research on senior leadership from this perspective.

Hambrick (1981b, 1982) assessed executive scanning of four types of environments (p. 257): output environments (i.e., "external product/market trends or events"), throughput environments (i.e., "external developments bearing on the processing or delivery of products/services"), administrative environments (i.e., "external developments bearing on the determination of roles and relationships in the organization"), and regulatory environments (i.e., "government regulations, taxes, sanctions, accreditations, litigation, etc"). He asked executives to rate how frequently they learned of events in these environments, how interested they were in each environmental sector, and the amount of time they spent scanning each sector. Each rating is combined to create a scanning index for each type of environment. Hambrick (1981b) reported sufficient validity and reliability for this measure. Farh, Hoffman, and Hegarty (1984) examined the convergent and discriminant validity of this

scale. While they reported significant problems with the time spent measure, they found strong evidence for the validity of the frequency and interest measures.

Another central issue in evaluating strategic decisionmaking models of senior leadership is the selection of criteria. Almost universally, the criteria of choice have been organizational-level outcomes and performance. This is appropriate given that models of senior leadership in the strategic decisionmaking framework define leader effectiveness almost entirely through the success and growth of the organizations they lead. However, most of the studies in this area have used private industries and financial or business performance indices. For example, Hambrick and Mason (1984) present a widely cited model of strategic choice and senior leadership that defines performance in terms of profitability, variations in profitability, growth, and survival. Strategic choices are defined in terms of such variables as product innovation, diversification, acquisition, financial leverage, administrative complexity, and response time. While these criteria have particular relevance for business industries, few if any of them can be applied to strategy leadership in nonprofit or governmental organizations. Thus, to examine strategic decision making and leadership in military organizations, researchers need to attend carefully to this criterion problem, with an eye toward developing more applicable outcomes in these organizations that still reflect the concepts in strategic decisionmaking models of organizational leadership.

LEADER DEVELOPMENT

Little attention has been devoted by researchers and theorists on leader development from the perspective of the strategic models described in this section. The research on leader characteristics suggests that leader expertise and functional experience is perhaps the strongest influence on strategy-making effectiveness (Hitt & Tyler, 1991; Hoffman & Hegarty, 1993). Executives with experience and expertise across multiple functional domains are likely to be more successful than executives with more limited experiences. Thus, developmental

interventions that emphasize differential functional experiences and assignments for junior leaders may be effective in terms of facilitating the expertise needed for successful executive strategy formulation.

The rational/normative model of strategic leadership places an emphasis on environmental analysis and problem solving. Hitt and Tyler (1991) found that, compared with industry characteristics and personal qualities of company executives, objective environmental criteria explained the most variance in acquisition decisions. This suggests that the development of analytical and problem solving skills of potential executive leaders should also contribute to subsequent effectiveness in strategy making roles. Empirical research is needed, however, to assess such interventions and their effects on the realization of effective strategic decisionmaking.

SUMMARY AND EVALUATION

Key Questions for Evaluation of Strategic Decisionmaking Models of Executive Leadership:

- How do executive leadership performance requirements differ from such requirements at lower organizational levels?
 - Where do these role requirements shift in quality across organizational levels?
 - How is leader effectiveness and influence defined and operationalized at different organizational levels?
 - What is the relationship between the accomplishment of executive performance requirements and organizational effectiveness?
 - What individual characteristics distinguish executive from lower level leaders?
 - What individual characteristics distinguish successful from unsuccessful executive leaders?
-

Several of the above questions used to evaluate the conceptual models of executive leadership examined in this report are grounded in qualitative differences in leadership requirements across organizational levels. For example, these models are being evaluated in terms of (a) how specifically they articulate cross-level differences in organizational leadership, and (b) their delineation of personal characteristics that foster effective junior- versus senior-level leadership. Strategic decisionmaking models have focused almost exclusively on top-level organizational leaders. Such leaders are typically the ones who are most responsible for the strategic formulation and implementation processes these models are intended to describe. Thus, the question of cross-level differences in performance requirements are less relevant to these models than those described in earlier chapters. Accordingly, they do not provide conceptual answers to several of the questions noted above. Also, they offer little in the way of formal measurement and developmental prescriptions.

Strategic decisionmaking models are quite important, however, because they provide a conceptual description, beyond those of other models discussed here, of how top leaders function and work as strategic planners. Organizational effectiveness is defined in part as a function of how well executive leaders (a) scan and interpret their environments; (b) use this information to develop a viable strategic plan; and (c) implement this plan. The specification of requisite executive characteristics follows from these strategic decisionmaking processes. Thus, key executive leadership qualities include cognitive abilities, expertise and knowledge, and personality and motivational characteristics. Each of these qualities are proposed by one or more models as facilitating the aforementioned strategic processes.

The strategic decisionmaking models of executive leadership do not provide responses to several of the questions posed at the beginning of this section. Yet they can add conceptual depth to the leadership perspectives described in Chapters 2 through 5. For example, Stratified Systems Theory proposes that the central means by which executive leaders add value to their

organizations is by constructing a causal frame of reference of the organization in its operating environment. This frame of reference, then, becomes a guide for collective action. This theory does not specify, however, how such a frame of reference is constructed. Strategic decisionmaking models (including the empirical research stimulated by these models that is presented in the next chapter) describe the scanning and interpretative processes that may contribute to frame of reference formation. Further, they provide valuable insight into the processes of strategic implementation that follow from an established organizational causal map. Because strategic analysis and implementation requires more than one executive role, the strategic decisionmaking models also augment the behavioral complexity perspective quite well.

In sum, the strategic decisionmaking models provide postulates regarding how executives make strategic decisions that facilitate organization-environment co-alignment. They do not specify how leadership changes across organizational levels. Nor do they offer formal measurement and development prescriptions for executive leadership. Nonetheless, when combined with the models described earlier, they provide a richer perspective of executive cognitive and behavioral contributions that help organizations thrive within complex and dynamic environments.

Chapter 7

Strategic Decisionmaking Models of Executive Leadership: Empirical Review and Evaluation

Chapter 6 presented a conceptual review and evaluation of strategic decisionmaking models of executive leadership. Chapter 7 examines empirical research that provides data regarding the role of executives in organizational strategy formation and implementation. These studies also examine how executive cognitive or decisionmaking processes facilitate organizational performance. The conceptual and empirical reviews of various executive leadership models in this report have been grounded in the themes of (a) nature of executive work, (b) requisite executive characteristics, (c) measurement of executive characteristics and behavior, and (d) leader training and development. The models examined in Chapter 6 and, therefore, in this chapter, however, have focused primarily on executive decisionmaking processes and the executive characteristics that facilitate these processes. Accordingly, the empirical studies reviewed in this chapter cover the first two of the aforementioned themes. Little if any systematic empirical research has been completed on measurement of executive processes and on executive development from the *perspective of the strategic decisionmaking models*. Therefore, these themes are not examined in this chapter.

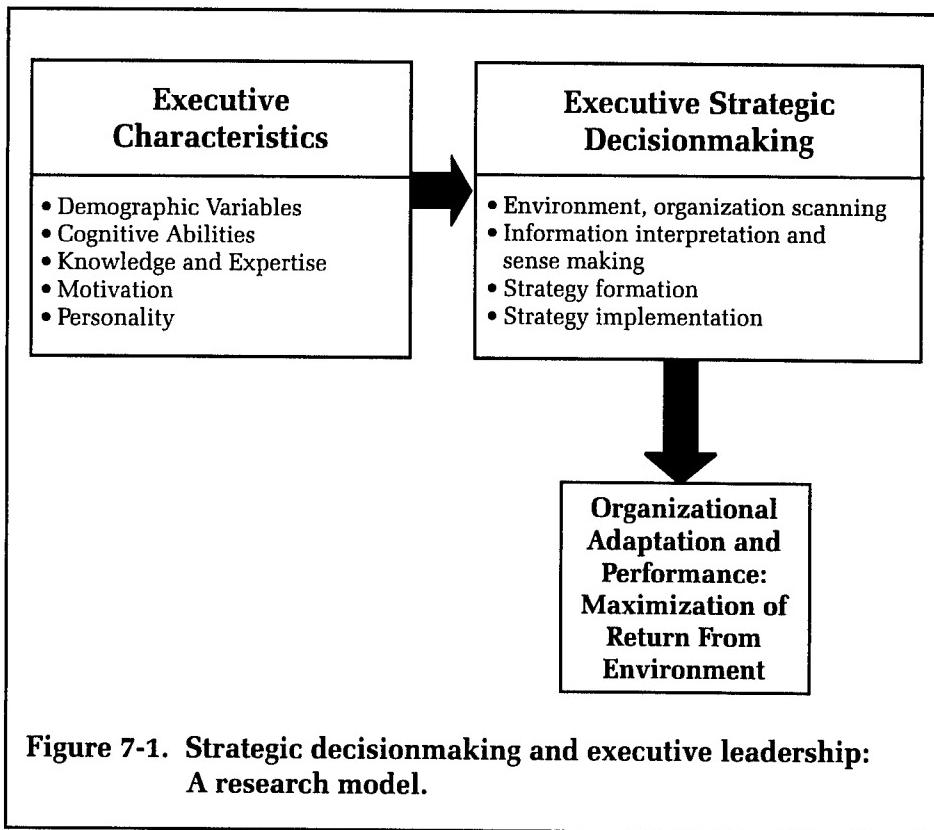
As noted by Hambrick (1989), strategic decisionmaking models of executive leadership have focused on top organizational executives, not on the qualitative differences across organizational levels. The premise is that top executives are responsible for strategic planning and organization-wide strategic implementation. Lower level leaders operate within the implementation plans established at higher levels; they have the responsibility for carrying out these plans in terms of day-to-day

operations. Their own managerial decisionmaking reflects the short- or near-term operationalization of organizational strategies (Drenth & Koopman, 1992). This distinction is congruent with the postulates derived from the conceptual complexity models reviewed in Chapters 2 and 3, particularly Stratified Systems Theory. As delineated in Chapter 3, considerable empirical support exists for these proposed cross-level differences. The remainder of this chapter will examine only executive-level strategic decision processes.

A RESEARCH MODEL

Figure 7-1 presents a research framework similar to those in Chapters 3 and 5 that was used to derive the postulates examined in this chapter. This model indicates proposed executive-level strategic decision processes and key executive characteristics. It also specifies that (a) executive characteristics are linked to the successful accomplishment of executive decisionmaking processes, and (b) effective executive strategic decisionmaking is associated with organizational adaptation and maximization of return from the environment. This chapter reviews empirical research regarding these variables and the associations between them.

Three generic executive strategic decision processes have been identified in the strategic management literature. The first is environmental scanning and interpretation, or *strategic sense making* (Thomas, Clark, & Gioia, 1993). If organizational performance is maximized by a strategic co-alignment between the organization and its environment, then knowing and understanding the environment becomes an important precursor to adapting organizational action to environmental changes. Organizational adaptation is grounded in the second generic executive strategic decision process—*strategic planning and formation*. Such planning is likely to proceed from the longest time horizon that affords maximum environmental adaptation. That is, under conditions of environmental turbulence, strategic plans are likely to reflect specific actions from a relatively short time frame, while being flexible if conditions warrant change. When environmental conditions are relatively stable, strategic



**Figure 7-1. Strategic decisionmaking and executive leadership:
A research model.**

plans can be specified in more detail over longer periods of time. As described in earlier chapters, some researchers argue that little executive time is devoted to strategy planning and formation (Isenberg, 1984; Mintzberg, 1973, 1975); however, the preponderance of empirical evidence favors the specification of strategic planning as an essential element of executive work (see Chapter 3).

The third generic executive strategic decisionmaking process is strategy implementation within organizations. While the first two processes emphasize *executive cognitive functions*, strategic implementation reflects *executive action or behavior*. Strategic implementation involves translating long-term and/or "grand" strategies into short-term/annual objectives and functional strategies (Hrebiniak & Joyce, 1984; Pearce & Robinson, 1995). Functional strategies are defined by Pearce and Robinson (1995, p. 310) as "the short-term activities that each functional area

within a firm must undertake in order to implement the grand strategy." Effectiveness of implementation is likely to depend, then, on how well these objectives are operationalized and measured (Hrebiniak & Joyce, 1984).

The models described in Chapter 6 propose several executive characteristics that facilitate strategic decisionmaking. These include (a) executive demographic variables; (b) cognitive abilities; (c) executive knowledge and expertise; (d) motivation qualities such as need for achievement and self-efficacy; and (e) personality characteristics such as locus of control and risk propensity. Empirical research should link these executive characteristics not only to organizational performance, but also to the quality of executive strategic decision processes.

The postulates examined in this chapter are derived from the research model in Figure 7-1 that is, in turn, based on the models and theories described in Chapter 6. The themes for the remaining sections of this chapter are (a) the nature and influence of executive strategic decisionmaking and (b) requisite executive characteristics.

THE NATURE AND INFLUENCE OF EXECUTIVE STRATEGIC DECISIONMAKING

The conceptual models described in Chapter 6 suggest the following postulates regarding the nature and influence of executive strategic decisionmaking:

1. *Executive decisionmaking and actions will have an incremental influence on organizational adaptiveness, beyond the influences of environmental contingencies and organizational characteristics.*
2. *Executive scanning and interpretation of the organization's environment will be associated with more effective organizational strategies.*
3. *The quality of strategic plans formed by executives will be positively associated with organizational performance.*

4. The quality of executive actions related to strategic implementation will be positively associated with organizational performance.

Do Executives Matter?

A central premise of some strategic management theories is that organizational effectiveness is grounded not in the actions of executives, but in either (or both) environmental conditions or the prevailing culture of the organization (Aldrich, 1979; Bourgeois, 1984; Hannan & Freeman, 1977; Lawrence & Lorsch, 1967; Miles & Snow, 1978; Romanelli & Tushman, 1986; Starbuck, 1983). In Chapter 1, studies that examined the degree to which executives mattered in organizational performance were reviewed. To recapitulate this review, executive succession studies by Lieberson and O'Connor (1972) and Salancik and Pfeffer (1977) have been widely cited as demonstrating the lack of executive influence on organizational strategic choices. However, Day and Lord (1988) argued for an alternate interpretation of these data, suggesting that the 7.5% to 32% of the variance attributable to leadership that was reported in these studies was a substantial amount. As a follow-up, Barrick, Day, Lord, and Alexander (1991) used utility analysis to determine that high executive performance was associated with an after-tax gain to the average organization in their sample of approximately \$25 million. Finally, executive succession studies by Weiner and Mahoney (1981) and Smith, Carson, and Alexander (1984) reported significant incremental variance due to leadership in multiple indices of organizational performance.

These studies suggest support for strategic decisionmaking models that favor a strong role for company executives. However, they do not contrast rational/normative models of strategic leadership from strategic choice models. The former models emphasize the rational and comprehensive consideration of objective environmental criteria while the latter suggest that a variety of executive motivational and personality characteristics also explain variance in strategic decisionmaking. Hitt and Tyler (1991) examined the relative contribution of these influences and industry characteristics to simulated acquisition decisions made

by top organizational executives. Industry characteristics reflected deterministic influences (i.e., independent of leadership) on organizational decisions. Objective criteria presumably captured the influence of rational/normative processes by company executives. Hitt and Tyler also measured several executive characteristics, including age, amount and type of work experience, cognitive complexity, and risk orientation. They found that all three sets of characteristics explained significant variance in simulated acquisition decisions by CEOs, suggesting that strategic decisionmaking is influenced independently by (a) uncontrollable environmental effects, (b) rational analysis of objective criteria to determine an appropriate strategy, and (c) executive personal characteristics. Hitt and Tyler also found that several executive characteristics moderated the influence of objective characteristics on leader decisions, suggesting significant support for strategic choice models.

Taken together, these studies support a prominent role for executives in organizational performance and suggest that characteristics in addition to information processing skills or cognitive abilities are likely to mediate this influence. Hitt and Tyler's (1991) study is particularly useful because it partitions variance in organizational decisionmaking to environmental characteristics, rational analysis of environmental and organizational characteristics, and executive characteristics. Their results provide direct support for postulate 1.

The significant influences of both executive characteristics and rational/normative analysis of objective criteria that were reported by Hitt and Tyler imply that executive sense making is important for organizational performance. The next section reviews the direct evidence regarding this link.

Sense Making, Strategic Planning, and Organizational Performance

Executive strategic decisionmaking can be characterized as a three-step process involving (a) environmental scanning; (b) interpretation and sense making; and (c) strategic choice and organizational responding (Daft & Weick, 1984; Milliken, 1990;

Thomas, Clark, & Gioia, 1993). Scanning is defined as “the managerial activity of learning about events and trends in the organization’s environment” (Bluedorn, Johnson, Cartwright, & Barringer, 1994, p. 213-214; Hambrick, 1981b). Scanning attention (i.e., what environmental sectors the executive chooses to scan) is dictated by organizational requirements. An important characteristic of both environmental scanning and the broader process of strategic decisionmaking is *comprehensiveness*. Frederickson and Mitchell (1984) defined comprehensiveness as “the extent to which an organization attempts to be exhaustive or inclusive in making and integrating strategic decisions” (p. 402).

Interpretation is the process of making sense or imparting meaning to information received from environmental and organizational scanning (Thomas et al., 1993). The sense making process is essentially one of assigning information to meaningful categories. Bluedorn et al. (1994) defined these categories as *strengths, weaknesses, opportunities, and threats*. Strengths and weaknesses emerge from a scanning and analysis of organizational characteristics. Opportunities and threats are labels assigned to issues that are perceived as either positive and having high gain potential or negative and having high loss potential. Environmental events may also be perceived as either controllable or uncontrollable (Jackson & Dutton, 1988; Thomas et al., 1993; Thomas & McDaniel, 1990). These labels influence the third step of strategic decisionmaking—executive actions and organizational responding (Dutton & Jackson, 1987; Meyer, 1982). Thus, for example, events labeled as threats may prompt defensive organizational reactions, while opportunities may lead to the adoption of more risky choices.

Organizational performance is determined by the quality of linkages among executive scanning, interpretation, and choices (Daft & Weick, 1984; Milliken, 1990; Thomas, Clark, & Gioia, 1993). Thomas et al. (1993) examined these linkages and their association in a survey of 156 hospital CEOs. Each participant responded to two scenarios that were used to assess their typical scanning and interpretation activities. Both the comprehensiveness and source (i.e., internal versus external) of

scanning were measured. Further, interpretation and sense making were measured in terms of whether events were labeled as positive or negative and controllable or uncontrollable.

Thomas et al. then assessed executive strategic choices in terms of the introduction of new products, services, and technologies into their hospital during the 3-year period after scanning and interpretation patterns were assessed. Organizational performance after strategic change was also assessed; three measures of performance were used: hospital occupancy rates, profits per discharge, and admissions.

Thomas et al. (1993) used path analytical techniques to assess the associations between strategic decision processes and organizational performance. They found that the comprehensiveness of scanning was significantly associated with the labeling of strategic issues as both positive (or representing potential gain) and controllable. Whether scanned information came from internal versus external sources did not influence sense making processes. However, both information source and the labeling of an issue as controllable influenced product service changes. According to Thomas et al. "when top managers interpreted strategic issues as controllable, they tended to act upon that perception by adding products and services to their hospital offerings" (p. 255). These product changes were significantly associated with higher subsequent organizational performance. Further, they found fully mediated linkages between scanning comprehensiveness and product changes through influences on issue interpretation. That is, scanning comprehensiveness affected the product/service changes selected by hospital executives, and therefore organizational performance, by influencing whether a strategic issue was labeled as either controllable or uncontrollable.

Thomas et al.'s (1993) study provides support for both postulates 2 and 3, that (a) executive scanning and interpretation will be associated with more effective organizational strategies; and (b) effective strategic choices will be positively associated with organizational performance. Their study also highlights the importance of scanning comprehensiveness in both organizational and environmental sectors for effective strategic

decisionmaking. Bourgeois and Eisenhardt (1988) report a similar finding in their examination of four companies in a high-velocity environment. They found that executives of companies with performance described as "taking off" or "stellar" made strategic decisions (a) after a wide search for decision options and alternatives, and (b) a comprehensive, "rational" analysis of these options. Executives of poorer performing firms used a more constrained search for options and a satisficing analysis to make strategic decisions. Other studies have reported that scanning frequency increases when environmental sectors become more uncertain (Daft, Sormunen, & Parks, 1988; Sawyerr, 1993). Further, Daft et al. reported that the correlation between environmental uncertainty and scanning frequency was stronger for high-performing than for low-performing companies.

While these studies support the utility of scanning comprehensiveness, other researchers have emphasized the limits and limitations of this process. For example, bounded rationality produced by human cognitive limits leads to satisficing strategies that preclude strategic comprehensiveness (Cyert & March, 1963; March & Simon, 1958). The more unpredictable and uncertain the organizational environment, the more likely attempts to be comprehensive will be dysfunctional. Frederickson and Mitchell (1984) found support for this notion in a study of 109 executives from 27 firms located in an unstable business environment. Each executive responded to decision scenarios that were designed to elicit his or her company's patterns of scanning and strategic comprehensiveness. Correlations between these measures and organizational performance, partialling out size, indicated that the comprehensiveness of situation diagnosis, alternative generation, alternative evaluation, and decision integration were negatively associated with organizational return on assets and sales growth. Frederickson (1984) examined responses to similar measures by 152 executives from 38 firms that operated within a *stable* environment. In this study, comprehensiveness was positively associated with return on assets but not sales growth. Frederickson and Iaquinto (1989) replicated these findings in a sample of 159 executives from 45 firms placed either in a stable or an unstable environment. These studies by Frederickson and

Iaquinto suggest that the effects of strategic comprehensiveness are significantly moderated by environmental conditions.

Another important influence on the efficacy of scanning comprehensiveness is the accuracy in executive's perceptions of particular dynamics in important environmental sectors. Bourgeois (1985) examined perceptual accuracy by executives of their organization's environment and the influence of accuracy on economic performance. Accurate perceptions should facilitate higher quality planning, and therefore, more appropriate strategic decisions. Company executives were asked to report their perceptions of uncertainty regarding customer, supplier, competitor, sociopolitical, and technological components of their organizational environment. Using industry statistics, Bourgeois also computed objective indices of environmental volatility. He found that divergence between executive perceptions of environmental uncertainty and actual environmental conditions was negatively associated with the firm's economic performance. That is, as executive perceptions of their environment became more inaccurate, the performance of their organization suffered.

Taken together, these studies indicate that environmental scanning and interpretation should produce more effective organizational strategies, although this relationship may vary according to several environmental conditions. These findings support the importance of strategic planning for organizational performance. As noted in earlier chapters, this premise has its detractors. Chapter 3 provided an empirical review of this relationship, with an emphasis on the meta-analysis by Miller and Cardinal (1994). Reviews by several other researchers emphasized that the tenuous associations generally observed between strategic planning and organizational performance may be attributed to (a) measurement issues and (b) contingency variables (Boyd, 1991; Pearce, Freeman, & Robinson, 1987; Shrader, Taylor, & Dalton, 1984). Miller and Cardinal's meta-analysis controlled for several organizational, environment, and measurement contingency variables; measurement deficiencies; and environmental turbulence. This analysis included 35 studies of the planning-performance relationship.

Miller and Cardinal reported small but significant corrected overall correlations between planning and growth (corrected $r = .17$) and between planning and profitability (corrected $r = .12$). These correlations were stronger when (a) data were derived from company informants instead of from archival sources; (b) planning was operationalized in terms of both formal and informal activities instead of just standardized procedures; and (c) when planning measures occurred appropriately before the assessment of performance and researchers ensured that strategic planning did not change appreciably before assessments of organizational performance. Further, planning-growth correlations were enhanced when industry effects were controlled, while planning was more strongly associated with organizational profitability under high turbulence than low turbulence.

Miller and Cardinal's (1994) meta-analytical review of the strategic planning and performance literature provides substantial support for postulate 2, that strategy formation is linked to effective organizational performance. Their research is noteworthy because it examines and controls for several moderators of this relationship that have been mentioned in earlier reviews. In particular, executive planning appears to become more important as environmental complexity and ambiguity increases. This finding is consonant with one premise of the conceptual complexity theories reviewed in earlier chapters that argued greater organizational and environmental complexity required more complex cognitive processes and skills (i.e., the law of requisite variety; Jacobs & Jaques, 1987).

The studies reviewed thus far emphasized strategy formation and performance; the question remains whether strategy formation is necessary and sufficient for effective organizational performance, or if the effectiveness of strategy implementation provides joint or additive influences on important organizational outcomes. The next section addresses this link.

Strategic Implementation and Organizational Performance

Unfortunately, few if any studies are available in the strategic decisionmaking literature that have assessed the *unique* contributions of strategic implementation tactics to organizational effectiveness, beyond the contributions of strategy formation. Many studies of strategic analysis and formation appear to subsume implementation processes in their measures of strategic change. For example, Thomas et al. (1993) found a significant link between the introduction of new products and services in hospitals and subsequent hospital performance. Because product/service changes occur at multiple organizational levels, an assumption can be made that this finding indirectly reflects successful implementation. However, there is a need to examine this link more directly.

Strategic implementation can be examined in terms of four subprocesses: (a) the operationalization of grand strategies into more specific and time-bounded tasks and activities; (b) the communication of organizational strategy, including its operationalization into tasks and activities, to subordinates; (c) the garnering of subordinate commitment to strategic changes and of their motivation to follow through these changes; and (d) the monitoring of strategic implementation activities to ascertain effective strategic change. Few studies have explicitly associated the first two of these subprocesses to successful organizational performance and adaptation. However, it is unlikely that organizational strategic change can at all be successful without effective operationalization and communication of executive strategic intent to the remainder of the organization. Further, the level of communication should be congruent with the degree of uncertainty present in a manager's operating environment, such that higher communication should occur in more unstable environments. Along these lines, Morrow (1981) found that higher unit communication increased organizational effectiveness under conditions of environmental turbulence, but decreased it when the environment was stable.

Research to be described in Chapter 9 examines the efficacy of executive behavior designed to empower subordinates and facilitate their commitment to strategic change. Related research

by Wooldridge and Floyd (1990) found that when middle-level managers from 11 banks and 9 manufacturing organizations participated in strategy formation, their commitment to and understanding of the strategic change was greater than if their participation was more limited. Further, the strategic involvement of these managers resulted in higher economic performance. Research on the monitoring and evaluation of subordinate activities also links these strategic control mechanisms to organizational effectiveness. Strategic control reflects the use of feedback and feedforward processes designed to inform top managers and subordinates of strategic implementation effectiveness (Schreyogg & Steinmann, 1987). A few studies have associated the use of strategic controls to strategic innovation (Hitt, Hoskisson, Johnson, & Moesel, 1993) and organizational effectiveness (Govindarajan, 1988; Gupta, 1987). However, further empirical research is necessary to broaden understanding of how executive monitoring and other strategic implementation processes are associated with organizational performance, particularly under different environmental contingencies.

Top Management Team Processes and Organizational Performance

The research examined thus far has not focused on how top management *team* processes influence environmental scanning, interpretation, strategy formation, and strategy implementation. Two categories of variables can be used to examine these relationships. The first is the demography of the top management team. These variables are discussed in the next section on executive characteristics and strategic decisionmaking. The second category includes variables related to the informational and social processes within the team that influence team members' perceptions and interpretations of strategic issues, their selection of strategic choices, and their implementation of strategic plans. These processes are examined in this section.

Sutcliffe (1994) examined how top management team structure and information acquisition processes influenced team

perceptual accuracy, or the congruence between members' perceptions of environmental conditions and the actual conditions. Team structure referred to the centralization of decisionmaking authority within the team. High centralization would increase the likelihood that subordinate executives within the team conform to prevailing perspectives in their scanning and interpretation of environmental events (Jacobs & Jaques, 1987; Schwenck, 1984). Such conformity, however, may decrease perceptual accuracy. Sutcliffe also examined the level of environmental scanning and organizational performance monitoring completed by the top management team. Higher levels of both were expected to increase team perceptual accuracy. Executive teams from 65 organizations completed survey measures of environmental perceptions, decisionmaking centralization, environmental scanning, and performance monitoring. Objective measures of environmental instability and munificence were gathered from archival data. Sutcliffe found that perceptual accuracy regarding environmental stability was predicted by greater scanning among team members and less centralization. Accurate perceptions of environmental munificence were predicted marginally by team environmental scanning activities.

Thomas and McDaniel (1990) examined how the information-processing structure of top management teams influenced information interpretation. Information-processing structure was defined in terms of the degree of participation, interaction, and formalization within the team. High levels of participation and interaction with low use of formalized procedures increases the information-processing capacities of the team as a whole. Accordingly, these characteristics were expected to result in high information use during strategic interpretation. Furthermore, team information capacity reduces the likelihood that teams would experience information overload and stress; therefore, they would be less likely to label environmental events as threatening and uncontrollable. Thomas and McDaniel found support for these hypotheses in a survey of 151 hospital executive teams.

Thomas, Shankster, and Mathieu (1994) also examined the relationship between team information-processing structure and the interpretation of strategic and political issues. Strategic issues were concerned with the organization's overall mission and its market position. Political issues involved conflict and negotiation among organization executives regarding their meaning and control. Thomas et al. also examined the degree of political activity (e.g., power acquisition, coalition building) within the team and the strength of the team's organizational identity. Results of surveys gathered from top management teams in 178 educational institutions indicated that team identity and political activity were associated with both strategic and political interpretation. High identity was linked to greater levels of strategic interpretation and less political interpretation; team political activity was linked to high levels of both types of interpretation. Team information-processing capacity was not associated with strategic interpretation, but was linked to a lower likelihood that an issue would be interpreted as political.

The two studies by Thomas et al. (1994) suggest that high levels of participation and interaction in top management teams facilitate strategic interpretations. Arguably, these processes increase the cognitive resources that the team as a whole can devote to strategic decisionmaking. However, Korsgaard, Schweiger, and Sapienza (1995) used an experimental design with strategic decisionmaking teams composed of middle- and upper level managers to examine how member involvement in decisionmaking contributed to commitment to team decisions, trust in the team leader, and perceptions of procedural justice. Korsgaard et al. manipulated leader consideration of member inputs and influence on team decisions of these inputs. They found that both leader consideration and member influence increased perceptions of fairness, strength of postdecision attachments to the group, and postdecision trust in the leader. Further, leader consideration significantly affected decision commitment when member influence was low. Consideration had no effect when influence was high. This suggests that leader attention to member contributions can still result in positive team outcomes even when these inputs do not influence final decisions.

A theme across the studies described thus far is that high participation and involvement by team members in strategic decisionmaking should facilitate the team's information-processing capacities and social dynamics. However, greater team interactions could also raise the likelihood of team conflict, which may constrain effective strategic decisionmaking. Indeed, Jacobs and Jaques (1987) noted that the importance of top executive teams that establish collegial relationships is that members feel more enabled to disagree with prevailing perspectives and thus are more likely to detect environmental signals. However, the possibility of conflict in this scenario is greater than when members operate within a single perspective.

Along these lines, Amason (1996) examined two forms of conflict in top management teams: cognitive conflict and affective conflict. Cognitive conflict refers to conflict among team members that "is generally task-oriented and focused on judgmental differences about how best to achieve common objectives" (p. 127). Such conflict is considered helpful to team decision quality because it results in diversity and integration of multiple perspectives. Affective conflict "tends to be emotional and focused on personal incompatibilities or disputes" (p. 129). Such conflict inhibits decision consensus and impairs decision quality. Amason provided support for these proposed differences between cognitive and affective conflict from surveys of 48 top management teams in food-processing companies. He also examined these relationships in a second sample of five furniture manufacturing companies. He found that cognitive conflict was positively related to the quality, understanding, and acceptance of top management team decisions; affective conflict adversely influenced these outcomes.

Amason's (1996) findings, combined with those described earlier, indicate that top management team processes regarding the exchange of different strategic perspectives within a positive and tolerant environment improve several aspects of strategic decisionmaking. The research by Sutcliffe (1994) and by Thomas et al. (1994) suggest that team information processing capacities facilitate environmental scanning and interpretation.

The findings reported by Korsgaard et al. (1995) and Amason (1996) indicate that team interaction processes also influence outcomes important for strategic implementation, including acceptance of team decisions and commitment to their success. Thus, research on top management teams provide support for postulates 2 and 3. Given the studies reviewed earlier that supported the link between executive strategic decisionmaking and organizational performance, team management processes that improve such decisionmaking should also facilitate organizational effectiveness.

Summary

The research reviewed here indicates support for three of the four postulates offered at the beginning of this section. Day and Lord's (1988) analysis of prior executive succession studies as well as Barrick et al.'s (1991) follow-up demonstrate the utility of executive leadership for organizational performance. Additional evidence for this utility is provided by Weiner and Mahoney (1981), Smith et al. (1984), and Hitt and Tyler (1991). Other studies reviewed here suggest that the value of executive leaders lies in part in the quality of their strategic decisionmaking. Specifically, environmental analysis and strategy formation contribute to organizational effectiveness, defined as adaptiveness within its environment. However, little empirical evidence exists that specifically links strategic implementation processes to organizational performance. Thus, postulate 4 remains unsupported.

If CEO and top management team scanning, interpretation and strategic choices are linked to organizational performance, then personal and team characteristics that facilitate these strategic processes should contribute to overall executive effectiveness. Empirical studies that have examined associations between such characteristics and strategic decisionmaking are examined in the next section.

REQUISITE EXECUTIVE CHARACTERISTICS

The conceptual models described in Chapter 6 proposed several important executive characteristics. These were demographic characteristics, cognitive abilities, functional expertise and knowledge, and motivational and personality variables. These personal characteristics influence executive performance by improving the quality of scanning, interpretation, strategy formation, and strategy implementation processes. Accordingly, the following postulates are offered:

- 5. Variables such as age, education, socioeconomic roots, financial position, and top management team demography will be associated with environmental scanning, information interpretation, strategy formation, and strategy implementation by executives, as well as with overall organizational performance (the direction of association will differ with each demographic characteristic).*
- 6. Executive cognitive abilities will be positively associated with environmental scanning, information interpretation, strategy formation, and strategy implementation by executives, as well as with overall organizational performance.*
- 7. Functional expertise and executive knowledge will be positively associated with environmental scanning, information interpretation, strategy formation, and strategy implementation by executives, as well as with overall organizational performance.*
- 8. Need for achievement and executive self-efficacy will be positively associated with environmental scanning, information interpretation, strategy formation, and strategy implementation by executives, as well as with overall organizational performance.*
- 9. Locus of control, risk propensity, and flexibility will be associated with certain patterns of environmental scanning, information interpretation, strategy formation, and strategy implementation by executives, as well as with innovative decisionmaking and overall organizational performance (the direction of association will differ with each dispositional characteristic).*

Demographic Variables

Several studies have provided support for postulate 5. Hitt and Tyler (1991) reported that CEO age and type of education moderated how objective environmental characteristics influenced acquisition decisions (although they did not clearly specify the direction of these effects). Taylor (1975) found that managerial age was positively related to amount of information sought and the accurate diagnosis of such information. Age was negatively related to decision speed. Grimm and Smith (1991) reported that managerial age was linked to the probability of making strategic changes: younger managers made such changes more readily than older managers. Other studies have shown that longer CEO tenure in a company and/or in an industry was associated with more information-processing limitations, less likelihood that strategic issues would be interpreted as having political connotations, and persistence in using prior organizational strategies, even when their effectiveness is suspect (Miller, 1991; Hambrick, Geletkanycz, & Frederickson, 1993; Thomas et al., 1994).

Several researchers have examined the average level and range of demographic characteristics in top management teams. Bantel and Jackson (1989) found that a team's average educational level, but not average age or tenure, was positively associated with team innovativeness in strategic decisionmaking. Wiersema and Bantel (1992) also reported similar findings with respect to strategic changes, except that the average tenure of the team was negatively related to the likelihood of making strategic changes. Also, the heterogeneity of educational specialization within the management predicted strategic change decisions. These studies point to the importance of some demographic characteristics for strategic outcomes. Other studies have linked team demography to strategic processes. For example, Sutcliffe (1994) examined the effects of top management team tenure, or the length of time the team had been together, on members' accuracy of environmental perceptions. She found that tenure significantly improved the perception of environmental munificence. Finally, Murray examined a single index of team homogeneity-heterogeneity that combined age, tenure within the

firm, tenure with the team, and occupational and educational backgrounds. He found that team homogeneity facilitated team interactions under conditions of intense competition. However, team heterogeneity fostered adaptability under conditions of environmental change.

Taken together, these studies demonstrated that individual executive demographics as well as executive team demography influence strategic decisionmaking processes and outcomes. They provide evidence for Hambrick and Mason's (1984, p. 194) view that "top executives matter." However, these variables are likely to be markers of psychological variables such as risk propensity, tolerance for ambiguity, and knowledge representations. For example, the effects of age and company tenure on strategic decisionmaking are often attributable to the tendency of younger managers to be less risk averse and more willing to be innovative (Hambrick & Mason, 1984; Hitt & Tyler, 1991). Alternatively, Stratified Systems Theory suggests that age is likely to be linked (with appropriate developmental experiences) to more complex cognitive skills, higher quality knowledge structures, and, therefore, superior strategic analyses (Jaques, 1986; Lewis & Jacobs, 1992).

Unfortunately, however, few studies in the strategic management literature have associated demographic variables to such psychological constructs. Hambrick and Mason (1984) attributed this to three factors. First, psychological variables are often not amenable to measurement. Second, some demographic variables do not have ready psychological analogues. Third, objective characteristics would be more appropriate for the application of strategic models to executive selection and development. Regarding this last point, however, executive development typically targets psychological change. Also, because psychological variables are likely to be the most proximal determinants of an executive's influence on strategic decisionmaking processes, an exclusive reliance on objective background data is not likely to provide a rich conceptual understanding of such processes. Accordingly, further research is necessary to link executive demographics to psychological mediating variables.

Cognitive Abilities

Only a few studies have examined executive cognitive ability in relation to specific strategic decision processes and outcomes. Further, the results of these studies are mixed. For example. Hitt and Tyler (1991) examined and found no support for the influence of executive cognitive complexity on simulated acquisition decisions made by 65 top executives. Also, Dollinger (1984) found no effect of executive integrative complexity on a firm's financial performance, However, he found that integrative complexity was associated with the amount of time executives spend interacting outside the organization's environment. Furthermore, higher integrative complexity resulted in stronger positive correlations between boundary spanning activities and company performance. This suggests that cognitive skill is necessary to link information acquired in boundary spanning to strategic actions that will boost organizational performance. Finally, Lefebvre and Lefebvre (1992) reported that CEO analytical abilities were associated with the degree of their firm's innovativeness.

The general trend of these studies is that cognitive abilities are related to some aspects of strategic decisionmaking, but not others. Other studies described in Chapter 3 link particular cognitive abilities to some broader executive leadership criteria (e.g. Baehr, 1992; Isenberg, 1984, Norburn, 1986; Rusmore, 1984; Rusmore & Baker, 1987). However, while the conceptual basis for a proposed link between cognitive abilities and strategic decisionmaking is very strong, the empirical evidence remains scant. One constraint on such evidence is that the range in cognitive abilities is likely to be fairly restricted—few individuals are likely to reach top organizational levels without some of these abilities. Nonetheless, as suggested by Stratified Systems Theory, strategic leadership requires high-level conceptual capacities that go beyond intelligence and basic reasoning skills. Executives are likely to differ on how much of such capacities they have and utilize. Unfortunately, measures of these capacities typically need further psychometric support and, in particular, additional construct validation (see Chapter 3). This requirement inhibits their use at this time in investigating the

role of cognitive capacities on various strategic decision processes.

Functional Expertise and Knowledge

Several studies have examined the relationship between both individual executive and executive team expertise and strategic decisionmaking. Often in these studies expertise is operationalized as the extent and breadth of an executive's (or team's) experience in different functional areas. Lefebvre and Lefebvre (1992) investigated degree of functional experience possessed by CEOs of 74 manufacturing firms. They found that functional experience in accounting/finances was negatively associated with firm innovativeness; expertise in engineering and production, however, was positively associated with innovativeness. Hoffman and Hegarty (1993) examined executive expertise in general management, marketing, production, R&D, and finance. They found that each form of expertise contributed significant variance to the degree of influence exerted by executives on innovation decisions. These two studies suggest that the breadth of an executive's functional expertise positively influences his or her likelihood to be innovative in strategic decisions.

The aforementioned studies examined individual strategic innovativeness. Bantel and Jackson (1989) investigated whether functional diversity among top management team members in the banking industry contributed to innovative decisions by the team as a whole. They found that the breadth of functional backgrounds upon members of executive teams was related to innovative changes in banking administration, reflecting such areas as staffing, planning, personnel training, and compensation. Functional diversity was not related to technical innovation (e.g., innovation in services/products, delivery systems, and office automation), however, after controlling for other team characteristics (e.g., age, tenure, educational level, and heterogeneity in these three characteristics). Thus, team functional heterogeneity partially mirrors the findings reported from CEO functional heterogeneity.

Team functional heterogeneity can be beneficial because it increases the cognitive resources an executive team can devote to strategic analysis and decisionmaking. The result should be more comprehensive environmental scanning and more accurate environmental perceptions. Sutcliffe (1994), however, found effects opposite of these predictions. She examined team functional diversity, organizational scanning activities, performance monitoring activities, and the accuracy of team members' perceptions of environment instability and environmental munificence. She reported that functional diversity exhibited a marginal negative relationship to organizational scanning and no association to performance monitoring (both arguably measures of comprehensiveness). She also found that diversity was not related to perceptual accuracy of environmental instability and *was negatively related to the accuracy of perceptions of environment munificence*. Thus, contrary to prediction, team functional diversity appears to impair some elements of strategic decisionmaking.

This impairment may be a function of another byproduct of functional diversity in top management teams—more internal conflict. The different perspectives sparked by diversity may make it more difficult to reach consensus on environmental perceptions, interpretations, and strategic choices. Some indirect support for this suggestion was offered by Murray (1989), who measured top management team efficiency in terms of short-term performance indices, arguing that such measures illustrate how quickly and efficiently the team responds to or exploits profit opportunities. He found that occupational heterogeneity within 26 oil company teams was negatively related to performance efficiency; this effect worsened under conditions of high industry competition. (Murray did not find these effects, however, in a corresponding sample of food industry teams.)

Murray's study assumes that short-term performance is an appropriate index of team efficiency in strategic decisionmaking. Smith, Smith, Olian, Sims, O'Bannon, and Scully (1994) examined more directly the effects of team heterogeneity on two team processes, social integration and communication, as well as

on team performance. They argued that heterogeneity would lead to more formal communication patterns among team members and therefore less social integration and cohesion. The result should be lower organizational performance. They found support for this model in a sample of 67 technology-based organizations. Specifically, team heterogeneity impaired team communication, which in turn inhibited social integration, with consequent negative effects on company return on investments and sales growth.

Taken together, these studies provide an interesting picture of the influences of executive and team functional expertise on strategic decisionmaking. The research reported by Lefebvre and Lefebvre (1992), Hoffman and Hegarty (1993), and Bantel and Jackson (1989) indicate that the breadth of executive expertise appears to be related to greater strategic innovativeness. However, studies of top management team expertise suggest that breadth of expertise in the team may impair team process and thereby hinder other measures of organizational performance. Integrating these findings suggests that team functional heterogeneity (and, therefore, its breadth of expertise) can help organizational performance only if team conditions can be established that facilitate the exchange of diverse strategic perspectives without sacrificing team process and cohesion. Amason (1996) illustrated differences between cognitive and affective conflict in top management teams and demonstrated that the former was positively related to higher quality strategic decisions, while the latter impaired such decisions. He did not, however, examine whether team heterogeneity was more or less linked to either or both forms of conflict. Nonetheless, separating these forms of team conflict and demonstrating their opposing effects on team performance provides a framework for future investigations of team heterogeneity and strategic decisionmaking.

Motivational Orientation and Personality

Several studies have confirmed the importance of executive motivational and personality variables on strategic decisionmaking. Miller, Kets de Vries, and Toulouse (1982)

examined executive locus of control, strategy innovativeness, and other strategy process variables in a sample of 33 firms from a variety of industries. They found that executives with an internal locus of control displayed more innovation in production/service methods, introduced more new products, and initiated more product research and development than executives with an external locus of control. Internal executives were also more proactive in their strategies, higher in risk taking, and more likely to engage in long-term planning and environmental scanning than external executives.

Miller and Toulouse (1986) confirmed this effect of executive locus of control on strategy innovation in a sample of 97 firms from a variety of industries. They also reported a significant correlation between locus of control and growth in company sales over a 5-year period, with internal executives linked to higher performance. Lefebvre and Lefebvre (1992) found similar effects of executive attitudes toward risk, proactive attitudes, and locus of control in CEOs from 95 manufacturing firms. Finally, Khan and Manopichetwattana (1989) divided 50 firms into five groups, two representing innovative firms and three including noninnovative firms. Of the three groups of noninnovative firms, the one lowest on several indices of organizational competence included companies headed by executives that tended to have an external locus of control.

Miller and Toulouse (1986) also examined the relationship between executives' achievement needs and flexibility, respectively, and company strategy and performance. Executive flexibility was associated with less environmental analysis, long-term planning, and proactive strategy formation. More flexible executives were also more oriented toward taking risks, although flexibility was not associated with strategy innovation. Executive flexibility was correlated, however, with company growth in sales and net income over a 5-year period. High achievement needs in executives were associated with more environmental analysis and proactive strategy making. However, such needs were not associated with strategy innovation and company performance.

Howell and Higgins (1990) compared top company leaders who were champions of technological innovation with those who did not champion new products and projects. They examined product innovation in 28 organizations and identified for each company and innovation both a product champion and nonchampion. These groups of executives were then compared on several personality measures. Howell and Higgins reported that champions differed from nonchampions by displaying higher risk-taking propensity, stronger achievement orientation, and more creativity; they did not differ on social adroitness and endurance.

These findings provide substantial support for postulates 8 and 9 that motivational and personality variables would be associated with executive strategic decisionmaking processes and outcomes. The only variable that was proposed as an important executive characteristics but has received little support is executive self-efficacy; however, to date this characteristic has not been sufficiently investigated in these kinds of settings. Future research may provide such evidence and justify its inclusion as an important determinant of executive decisionmaking.

Summary

The research summarized here on proposed executive characteristics that facilitate strategic decisionmaking provides support for all of the offered postulates. The qualities receiving the most support are demographic variables and personality constructs. Functional expertise appears to influence strategic innovation; however, there is a need to disentangle the positive and negative effects of functional heterogeneity on cognitive and affective conflict, respectively, in top management teams. Finally, a handful of studies support the proposed link between cognitive abilities and strategic decisionmaking.

A caveat is that few studies have examined all of these personal qualities in a single multivariate study (although two studies, by Lefebvre & Lefebvre, 1992, and Hitt & Tyler, 1991, did examine a subset of these variables in a multivariate framework).

A multivariate approach could provide data regarding three questions. First, what is the relative contribution of each set of executive characteristics to strategic decisionmaking. One might argue that cognitive abilities should have the strongest influence; yet, the evidence just cited seems to be most positive for personality variables. A multivariate study can resolve this question. A second issue is whether the effects of demographic variables on strategic processes and decisions actually reflect the influence on unmeasured psychological constructs (e.g., is age a marker for risk-taking propensity?). Finally, a central question is whether the joint or multiplicative influence of these sets of variables explains significant variance in strategic outcomes beyond their additive effects. Thus, a multivariate approach can address if both cognitive abilities and personality constructs are necessary (or neither alone is sufficient) for effective strategic decisionmaking. The findings from such studies would prove invaluable for subsequent executive selection and development efforts.

STRATEGIC DECISIONMAKING MODELS: GENERAL CONCLUSIONS

This empirical review of strategic decision models of executive leadership yields the following conclusions regarding the postulates in Figure 7-1:

- By their actions, and the personal qualities that maximize the effectiveness of these actions, executives have a determining role on organizational performance and adaptation, beyond the influences of environmental and organizational characteristics. That is, significant empirical support exists for the strategic choice or “upper-echelon” models of executive leadership (e.g., Child, 1972; Hambrick & Mason, 1984).
- Environmental scanning, information interpretation, and the quality of formed strategies by top executives (and/or executive teams) are related to organizational performance. The strength of these relationships are moderated by environmental conditions.

- Little empirical evidence is available regarding strategic implementation decisions and actions on organizational performance. Some studies have shown, however, the participation of lower level managers in top executive strategic decisionmaking improves understanding and acceptance of final strategic choices.
- Executive characteristics are related both to the nature of strategic decisionmaking processes and to the quality and innovativeness of strategic outcomes. Team heterogeneity, however, exhibits mixed influences on executive team decision processes and outcomes.

These studies illustrate how executive cognitive processes are related to long-term planning and organizational strategic outcomes. The conceptual complexity models discussed in Chapters 2 and 3 describe how the causal maps and integrated understandings of the organization and its environment that are developed by top executives add value to the organization. The research described in this chapter is certainly compatible with those models. However, the strategic decisionmaking models of executive leadership provide a description of the decision processes that influence the formation and use of integrated organizational causal maps. They add a degree of conceptual richness to the conceptual complexity models. Alternatively, the conceptual complexity models are more explicit about changes in strategic decisionmaking across organizational levels and the nature of requisite managerial cognitive capacities. Thus, they, in turn, inform the various strategic decisionmaking perspectives.

Another contribution to an understanding of executive leadership made by the strategic decisionmaking perspectives is their focus on top management teams. It is likely that strategic decisions in most types of organizations, including the military, are made as part of an executive team. Even when a CEO or top executive assumes significant responsibility for a decision, he or she is still likely to rely on a relatively small group of senior executives for decision input. The conceptual complexity models, particularly Stratified Systems Theory, have noted the actions of senior executives in forming social networks and consensus building. These actions are not entirely analogous to

top management team processes. The research reviewed in this chapter raises a number of key issues regarding these processes that on resolution should provide significant advances in understanding executive leadership dynamics.

The bulk of the research in the executive strategic decisionmaking domain has focused disproportionately on strategy formation processes. However, strategic implementation activities are equally important to the success of strategic changes. Well-constructed long-term strategies are ineffectual if they are not successfully translated into equally well-constructed implementation plans and activities, the most important of which are (a) the translation of long-term strategies into short-term objectives, and (b) the motivation of subordinates to implement strategic change. Further, the specification of executive characteristics that facilitate strategic decisionmaking appears to have been driven by strategy formation processes, not by the requirements of strategic implementation. Because strategic implementation requires intensive and often difficult social interactions, a variety of social competencies are likely to be necessary for executives to be successful (Zaccaro, 1996; Zaccaro, Gilbert et al., 1991). Yet, such competencies are infrequently discussed in the strategic decisionmaking literature.

These particular issues have been raised and explored by visionary models of executive leadership. Such models emphasize the executive's role in developing an organizational vision, but more importantly in "selling" the vision to organizational constituencies and to his or her subordinates. Indeed, Bass (1985) argues that an essential role of the executive is to empower subordinates to "take over" the vision and assume responsibility for its implementation. Thus, this and other visionary leadership models can perhaps fill the gap left by current strategic decisionmaking models in terms of operationalizing the long-term directions established by executives for their organizations. These models are the focus of the next two chapters.

Chapter 8

Models of Visionary/Inspirational Leadership: Conceptual Review and Evaluation

INTRODUCTION: THE NATURE OF ORGANIZATIONAL VISION

As in the strategic decisionmaking models, inspirational and visionary leadership models also emphasize the role of senior leaders in formulating a direction for the organization and taking action to implement their direction within the organization. However, according to these executive leadership models, the nature of what is formulated as a directional statement is different from the kind of leadership direction suggested by strategic decisionmaking models of leadership. The latter argue that leaders develop an organizational strategy after a careful perusal of both environmental and organizational conditions. This process is predominantly a rational one, albeit bounded by certain characteristics of the executive. Further, strategies tend to reflect relatively short-term directions because as the leader projects further and further into the future, there is less reliable information to base a reasonably rational judgment of appropriate organizational directions. Models of inspirational and visionary leadership suggest that leadership direction is established through a visionary statement that is more amorphous, reflects a longer time perspective, and is more value-based than organizational strategies. Visions, however, do lead to strategies.

Models of inspirational leadership argue that the formation and articulation of a vision is central to the activities of senior organizational leaders. What, then, is vision, as opposed to strategy? Table 8-1 contains several definitions offered by theorists who emphasize vision in their models of leadership. A

Table 8-1. Definitions of Vision

Reference	Definition
Bennis & Nanus, 1985, p. 89	To choose a direction, a leader must first have developed a mental image of a possible and desirable future state of the organization. This image, which we call a vision, may be as vague as a dream or as precise as a goal or mission statement. The critical point is that a vision articulates a view of a realistic, credible, attractive future for the organization, a condition that is better in some important ways than what now exists.
Nanus, 1992, pp. 25-26	A vision is a mental model of a future state of a process, a group, or an organization. As such, it deals with a world that exists only in the imagination, a world built upon plausible speculation, fabricated from what we hope are reasonable assumptions about the future, and heavily influenced by our own judgments of what is possible and worthwhile. A vision portrays a fictitious world that cannot be observed or verified in advance and that, in fact, may never become reality. It is a world whose very existence requires an act of faith.
Kouzes & Posner, 1987, p. 85	Vision, first of all, . . . is a "see" word. It evokes images and pictures. Visual metaphors are very common when we are talking about the long-range plans of an organization. Second, vision suggests a future orientation—a vision is an image of the future. Third, a vision connotes a standard of excellence, an ideal. It implies a choice of values. Fourth, it also has the quality of uniqueness. Therefore, we define vision as <i>an ideal and unique image of the future</i> .
Collins & Porras, 1991, p. 33	At the broadest level, vision consists of two major components: a <i>Guiding Philosophy</i> that, in the context of expected future environments, leads to a <i>Tangible Image</i> .
Sashkin, 1986, p. 59	Visions vary infinitely in the specifics of their content. Yet, some basic elements must be dealt with by any vision that is to have a substantial impact on an organization. One of these elements is <i>change</i> . . . Another basic element all visions must incorporate is a <i>goal</i> . . . A final element of an effective vision: It centers on <i>people</i> , both customers and employees.
Kotter, 1990, p. 36	In the sense that it is used here, vision is not mystical or intangible, but means simply a description of something (an organization, a corporate culture, a business, a technology, an activity) in the future, often the distant future, in terms of the essence of what it should become. Typically, a vision is specific enough to provide real guidance to people, yet vague enough to encourage initiative and to remain relevant under a variety of conditions.

number of common characteristics can be discerned in these definitions. The first is that visions often represent an idealized representation of what the organization should become. Thus, unlike strategies, visions are not necessarily derived from objective environmental criteria and organizational characteristics. Indeed, visions often reject current dynamics to propose a very different perspective of how organizations ought to fit with their environments.

This is not to say that visions are out of touch with environmental realities. Instead, they reflect an interpretation of some future environment. This is a second characteristic of vision. Visions are often a projection of a longer term future than strategies. For example, Kotter (1990) suggested that visions have a 3- to 20-year time frame, while strategies operate on a 1- to 5-year time frame.

Also, visions are not rigid, static, or inflexible (Nanus, 1992). Instead, they are adaptable to environmental events (although effective executives do not change the *value-based* core of their visions). Thus, models of visionary leadership recognize the importance of environmental forces and characteristics cited by strategic contingency and choice models of executive leadership.

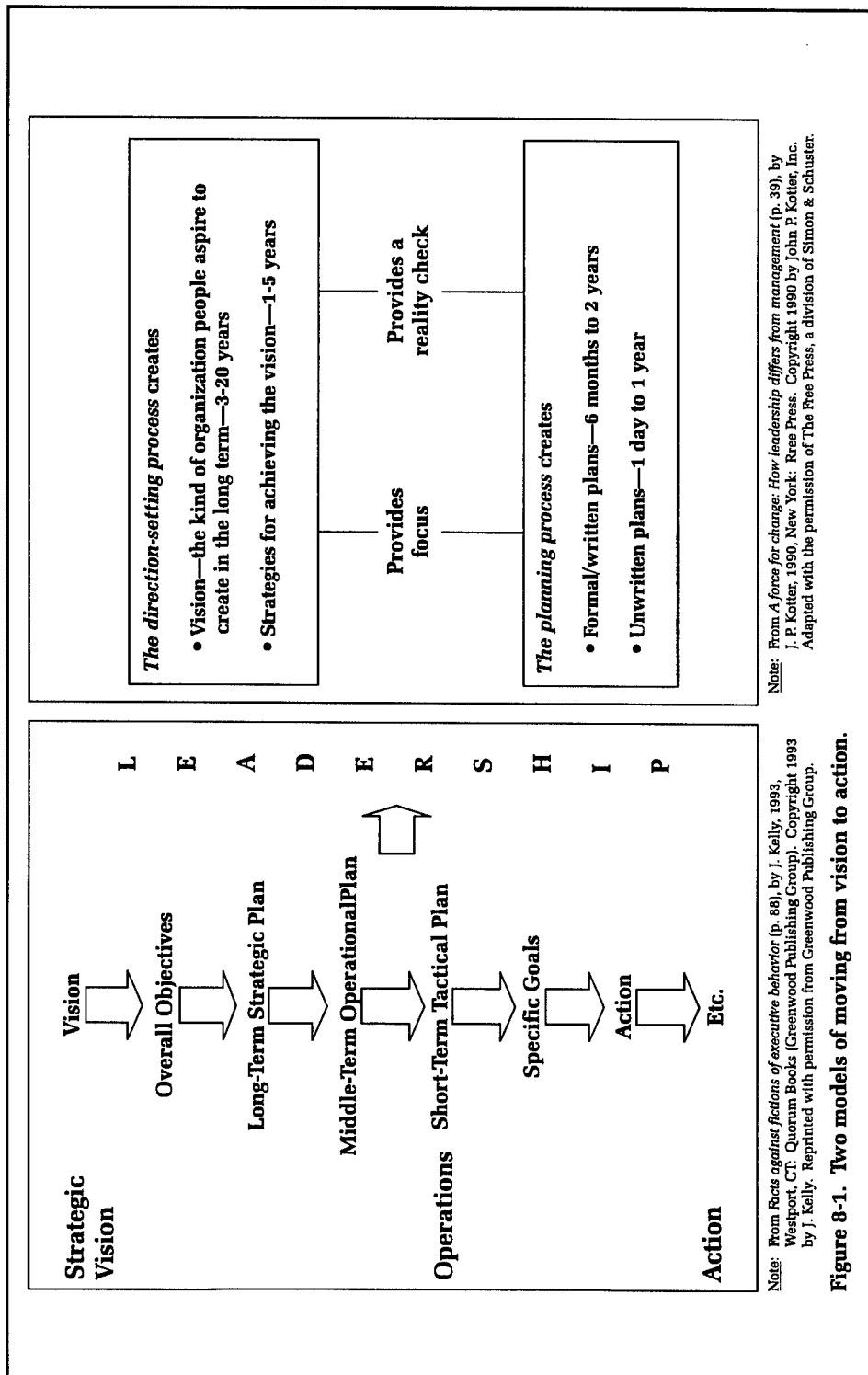
Visions are also statements of preference about what the organization *should* be. Accordingly, they reflect the primary value orientation of the visionary. Hambrick and Brandon (1988) also provided a role for executive values in strategic decisionmaking. They suggested that values can dictate certain patterns of executive behavior (i.e., "behavior channeling"). However, they asserted that the more common effect of values is to create a screen for executive perceptions of environmental stimuli. Regarding visions, values have a more pervasive role in that they are the foundation for the desired state and executive constructs for the organization. Values influence what the executive decides is a desirable organizational state; that is, what the organization "should be."

A final characteristic of visions is that they become symbols of change used by executives to reorient the collective behavior of organizational members. Both strategies and visions are used

to produce organizational change. However, a key difference is that strategies are often the basis for structural changes in organizational processes (e.g., changes in production methods, development of particular functional units), while visions may be used more often to enact changes in the organizational culture and climate. In essence, visions become the means by which senior leaders and organizational executives inspire and give meaning to the actions of their subordinates (Shamir, House, & Arthur, 1993).

The intention of this discussion is not to make vision and strategy mutually exclusive. Models of visionary leadership note that for leaders to be effective, visions need to be translated into day-to-day operations and activities. Thus, for these models, the nature of senior leadership involves the articulation of an organizational vision *and* the translation of this vision into purposive and meaningful organizational actions. This entails operationalizing a vision into strategies, goals, and objectives. Figure 8-1 illustrates this process as described by Kelly (1993) and Kotter (1990). In characterizing the work of Jack Welch, the chairman of General Electric, Kelly (1993) indicates how his strategic visions lead to objectives, strategic plans, and ultimately to organizational action. Kotter (1990) describes how visions of a long-term (3-20 years) future state are translated into a short-term (1-5 years) strategic plan that is then used to develop more specific plans of action having time frames ranging from 1 day to 2 years. These models indicate the clear connection between vision as an idealized future organizational state and more operational strategic plans. Unlike the strategic decisionmaking models described in the previous section, models of visionary leadership suggest that strategies emerge from a combination of executive's value-laden images of their future organizations and their perception of the environmental contingencies needed to achieve this future.

A critical role for senior leaders ascribed by models of inspirational and visionary leadership is to change and manage organizational processes in line with a formulated direction. Indeed, this leadership task is illustrated in the models described in Figure 8-1, as leaders are expected to translate their visions



into operational organizational plans. In this regard, visionary leadership and strategic decisionmaking models agree on the overall requirements of senior organizational leadership.

However, as noted above, the implementation of direction by strategic decisionmaking models typically focuses on changes to organizational structure. For example, in Wortman's (1982) model of strategic management functions of executives (see Figure 6-1), strategy implementation involves the (a) the organization of appropriate structural units, (b) staffing of units, and (c) directing operations. Here, executives reorganize the structure of the organization with the assumption that changes in personnel and climate will follow accordingly.

Directive leadership in visionary models more likely takes the form of motivating, inspiring, and empowering subordinates to the point where they assume the responsibility for structural change (Bass, 1985; Westley & Mintzberg, 1989). Thus, climate change becomes the primary means of directive implementation by senior leaders in visionary models of leadership. Indeed, Yukl and Van Fleet (1992, p. 174) describe one set of such models as follows:

Transformational leadership refers to the process of influencing major changes in the attitudes and assumptions of organizational members (organizational culture) and building commitment for major changes in the organization's objectives and strategies.

Transformational leadership involves influence by leaders on subordinates, but the effect is to empower subordinates who become *leaders and change agents also in the process of transforming the organization* [italics added].

According to visionary or inspirational models of leadership, senior leaders implement visions or preferred organizational directions through four primary processes. The first is to *enhance subordinate motivation by associating follower self-concepts with organizational outcomes* (Shamir et al., 1993). According to Shamir et al., charismatic leaders achieve this by (a) increasing the intrinsic value of subordinates' work-related efforts such that work becomes a more salient component of their self-concept; (b) empowering subordinates such that their

self-esteem, and by extension, their self-efficacy is enhanced (see also Bass, 1990); (c) increasing the intrinsic value of goal accomplishment by clarifying the meaning of subordinate effort and associating daily efforts to an overall mission or vision; and (d) enhancing subordinate faith in a better future.

The second process through which visionary leaders implement a new organizational direction is to *model and teach the behaviors suggested by a new course of action*. House (1977) notes that charismatic leaders “express, by their actions, a set of values and beliefs to which they want their followers to subscribe” (p. 194). Such leaders will preach a constant message that is consistent with their vision and, more importantly, tie their daily actions to that message.

A third process is *impression management and image building* by the senior leader (Bass, 1990; House, 1977). For significant change to occur, leaders need the confidence and trust of their followers. Accordingly, they will initiate actions that are likely to increase subordinate perceptions of their expertise and competence. Such actions bind the followers more closely to the leader and enhance the likelihood that he or she can convince organizational members of the need for change.

The fourth means by which visionary leaders implement visions is through their *manipulation of meaning and symbols* (Bass, 1988, 1990; Schein, 1992; Siehl & Martin, 1984). Visions convey a set of beliefs and values that create some meaning for organizational action. This meaning is instrumental in facilitating subordinate motivation because it prescribes a sense of purpose to their individual actions. Also, organizational leaders need to manage the meaning imparted to critical events in a manner that is congruent with their articulated vision. Further, they use symbols to provide a simple and coherent representation of meaning. For example, in the congressional elections of 1994, the Republican “Contract with America” was presented as a symbol of Republican philosophy and promise of change in government. After the election, Republican legislators carried a laminated card listing the Contract and punched it each time a promised vote occurred. Thus, the Contract became a visionary symbol. Its also became a way of managing the

meaning of the election and its implications for what Republicans called a revolutionary and cultural change in government.

All models of visionary and inspirational leadership suggest one or more of these processes as key components of the work prescribed for senior organizational leaders. Some theories emphasize the empowerment of subordinates and a partnership between leaders and followers in creating organizational change (e.g., Bass, 1985; Tichy & Devanna, 1986b). Others focus on the leader as a somewhat "mythical" figure that inspires intense loyalty and worship in followers (House, 1977). All of these theories agree that a visionary leader seeks to change their subordinate attitudes and behaviors so that they are congruent with his or her articulated vision. Accordingly, the criteria for leader effectiveness include not only measures of overall organizational effectiveness, but also indices of subordinate performance, motivation, and satisfaction (House, 1977). This point differentiates visionary and inspirational leadership models from other conceptual perspectives of executive leadership.

A significant point of disagreement among visionary leadership theorists is the degree to which a crisis is necessary for charismatic leaders to emerge (Weber, 1947). An organizational crisis signals the need for a fundamental change in the status quo and enhances the likelihood organizational members will attend to the alternative perspective (or vision) offered by a charismatic leader (Bass, 1990). However, House (1977) and Boal and Bryson (1988) argue that it is the effective articulation of a vision and the definition of follower roles in ideological terms that leads to the emergence of charismatic leaders. While a crisis can provide an opportunity for such articulation, it is not necessary for such leaders to come to the fore in organizations.

Four leading models of visionary and inspirational leadership are described in the following sections. These models share many of the aforementioned characteristics of the nature of senior leadership. While other models of visionary leadership in addition to the ones described here can be found in the literature

(e.g., Bennis & Nanus, 1985; Boal & Bryson, 1988; Burns, 1978; Collins & Porras, 1991; Kouzes & Posner, 1987; Nanus, 1992; Tichy & Devanna, 1986a, 1986b; Trice & Beyer, 1991; Weber, 1947; Westley & Mintzberg, 1989), these four models have received the most attention in terms of empirical tests and elaborations.

THE NATURE OF ORGANIZATIONAL LEADERSHIP

House's (1977) Theory of Charismatic Leadership

House's (1977) theory of visionary leadership emphasizes the charismatic quality of effective leaders. Charismatic leaders produce organizational change by articulating a vision for the organization and establishing a strong emotional attachment with followers that leads to their acceptance of this vision. This attachment develops from associating the leader's organizational vision with follower self-concept (Shamir et al., 1993).

According to House, charismatic leaders promote a strong identification with themselves in their followers. Through such personal identification, these leaders equate fealty to, and work on behalf of the leader's vision to, the follower's self concept. The result is a personal commitment by the follower to the leader, more self-sacrificing and organizational citizen behavior by the followers, and stronger perceptions by followers of the meaningfulness of their work.

House defines several behaviors of senior leaders that result in stronger follower identification and loyalty. A primary leader behavior is the articulation of an ideological goal. This is the vision that is used to define the meaning of organizational and subordinate actions. The ideological tone of the vision provides a moral basis for prescribed actions and is used to enhance an emotional attachment on the part of followers. This attachment is also facilitated by a second leadership behavior; i.e., the role modeling of attitudes, values, and beliefs engendered by the leader's vision. Such modeling increases the valence of these elements for the followers.

A third behavior of charismatic leaders is the management of their image to followers. To effect organizational change, a leader needs to garner the implicit trust of organizational members. To gain such trust, charismatic leaders engage in actions designed to demonstrate their own competence and effectiveness.

Two other leader behaviors suggested by House are directed at the enhancement of follower self-efficacy regarding the work requirements of the prescribed organizational change. The leader enhances follower self-efficacy by setting high-performance expectations and then communicating confidence in the followers' ability to meet these expectations. Setting high-performance goals increases motivation on the part of subordinates to meet these goals (Eden, 1984, 1990). Also, Bandura (1986) noted that persuasion by others of one's own competence was an effective determinant of self-efficacy.

In sum, House's theory of visionary leadership emphasizes the development of trust and intense loyalty in subordinates that results in their unqualified acceptance of proposed organizational changes. The next theory of visionary leadership, however, emphasizes subordinate empowerment as the primary mechanism of organizational change.

Bass's (1985) Transformational Leadership Theory

Burns (1978) introduced transformational leadership as a mode of leader influence in which followers were motivated to act beyond their self-interest in the service of a larger community. This mode of influence was contrasted with transactional leadership where the exchange between the leader and the follower was based less on transcending ideals and more on the ability of the leader to provide for the personal gain of followers. Transactional leaders rely on legitimate and reward power as the basis for influence, while transformational leadership incorporates referent power. An interesting point by Burns was that transformational leadership was not solely reserved for senior organizational leaders. Instead, such leadership influence can occur at all levels of the organization.

and can also include upward influence (i.e., subordinates to superior; Yukl & Van Fleet, 1992).

Following Burns (1978), Bass (1985, 1996) also argued that effective leadership involved transforming the motivation of subordinates so that they endeavored on behalf of the organization for goals and ideals other than self-interest.

Transformational leaders seek to activate higher order growth and self-actualizing needs (Maslow, 1954). Further, such leaders clarify the importance of organizational tasks and actions beyond the personal perspective of the follower. A difference between Burns's view of leadership and the subsequent perspective by Bass is that Burns presented transformational and transactional leadership as opposing styles. Bass argued that transactional leadership involves not only reward distribution and rule making, but also the clarification of goal paths. Thus, for Bass, successful leaders use both modes of influence.

An important distinction between this leadership approach and charismatic leadership is that charismatic leaders institute change by establishing an intense emotional attachment in the follower that leads to an unquestioning trust in the leader's vision. Conversely, transformational leaders empower subordinates as coagents of organizational change (Bass, 1985; Westley & Mintzberg, 1989; Yukl & Van Fleet, 1992). For example, Westley and Mintzberg (1989) suggest that

Indeed, there are important instances when the "followers" stimulate the leader, as opposed to the other way around. In most cases, however, it would appear that leader and follower participate together in creating the vision. The specific content—the original idea or perception—may come from the leader . . . , but the form which it takes, the special excitement which marks, is cocreated (p. 21).

Bass (1985, 1990, 1996; Bass & Avolio, 1993) proposed several behavioral characteristics of transformational leaders. One is that they provide a vision and mission for the organization. This vision elicits an emotional attachment by the subordinate and is the basis for strong identification with the

leader. A second characteristic is that they communicate strong performance expectations and use symbols to manage the meaning of critical information and components of their vision. These two characteristics link House's (1977) notion of charismatic leadership with transformational leadership. However, Bass also argued that charisma was insufficient for effective leadership. To empower followers and create a partnership for organizational change, transformational leaders provide intellectual stimulation and individualized consideration to subordinates. Such leaders encourage their subordinates to think autonomously and examine problems from different perspectives. They also provide individual and focused attention to their subordinates, often in the role of mentor or advisor. Bass (1990, p. 216) noted that these qualities, particularly intellectual stimulation, prevent the "habitual followership" and blind obedience that is engendered by purely charismatic leadership styles.

An important consequence of these activities is that transformational leadership cascades through organizational levels (Bass, Waldman, & Avolio, 1987). If senior leaders are successful in empowering their subordinates, then they too will demonstrate a transformational approach to their subordinates, and so on. This suggests that Bass's model does not distinguish between the activities of effective junior and senior leaders. A dissenting point of view is offered by Tichy and Ulrich (1984; see also Tichy & Devanna, 1986a, 1986b). They argued that the vision necessary for effective transformational leadership is developed at the top of the organization. Subordinate and junior organizational leaders focus on the implementation of this vision and, thus, are likely to display a more directive leadership style. Bass suggested that transformational leadership occurs at multiple levels, although he concurs that it is more likely to be evident at higher levels. Along these lines, Bass and Avolio (1993, p. 54) indicated:

Although much that has been written about transformational leadership (Burns, 1978; Bennis & Nanus, 1985; Tichy & Devanna, 1985) has concentrated on leaders at the top of the organizations and movements, we

have been able to observe and measure transformational leadership at all levels, even at the lowest levels of supervision and among nonsupervisory projects leaders, as well as among student leaders. However, even though transformational leadership behavior has been observed at lower organizational levels, it is likely to occur more frequently at the highest organizational levels.

Bass offered a model of visionary leadership that incorporates and expands on House's charismatic leadership theory (see House & Shamir, 1993, for their own integration of these different perspectives). These theories differ fundamentally, however, on the role of followers in the process of organizational change. The next leadership model in this conceptual framework extends the place of followers in inspirational leadership by highlighting their role in legitimizing such leaders.

Conger and Kanungo's (1987) Theory of Charismatic Leadership

Conger and Kanungo (1987, 1992; Kanungo & Conger, 1992) suggested that charisma is a quality that is attributed by followers to a leader on the basis of his or her behavior. They proposed that the attribution of charisma comes from three specific leader cognitive and behavioral patterns. The first is a leader's evaluation of the status quo that determines the need for change and the organization's capacity to effect such change. Here, leaders assess shortcomings in the present situation of the organization, environmental constraints on his or her action, and the abilities and needs of organizational members.

This assessment leads to the second behavioral pattern, the articulation of a vision that is discrepant from the status quo. To be successful, the leader's articulation to subordinates needs to be logical, cogent, and persuasive. Accordingly, the presentation of a leader's vision includes (a) problems in the current organizational state; (b) the nature of the vision itself, (c) how the vision resolves or improves the problems noted in the status quo; and (d) the strategic plans needed to implement the vision (Kanungo & Conger, 1992).

The third leader behavior pattern that leads to the attribution of charisma is the use of unconventional and innovative behaviors to implement the vision. Conger and Kanungo (1987) argued that because such behaviors are counternormative, they entail considerable personal risk by the leader. A behavior pattern that is personally risky and incurs high costs is perceived as selfless and therefore earns greater admiration and credibility from followers.

This model is different in two ways from the visionary leadership models discussed earlier. For leaders to emerge in this model, followers need to perceive a crisis confronting the organization that requires significant change. Alternatively, leaders need to create a compelling need for change. Thus, the task for charismatic leaders is to convince their potential followers of the critical situation that needs to be faced or at least persuade them of the advantages of an alternate organizational direction. Also, as opposed to the other models, Conger and Kanungo emphasized the need for visionary leaders to display behaviors denoting significant personal risk. Such behavior contributes to the emotional attachment required of the followers for successful charismatic leadership.

Conger and Kanungo's notion of the attribution of charisma suggests the importance of followers in legitimizing the charismatic leader (Hollander & Julian, 1970). This point is implicitly part of House's theory of charismatic leadership in that such leaders are not effective unless followers accept and trust their vision of the organization's vision. However, by positing an attributional framework, Conger and Kanungo placed particular emphasis on the critical behavioral patterns that must be displayed in some combination by senior organizational leaders attempting organizational change.

Sashkin's (1988a) Visionary Leadership Theory

Sashkin's (1988a; Sashkin & Fulmer, 1988) model focuses on the content of a leader's vision and the process of visioning. He noted that visions have three themes—change, ideal goals, and a social orientation. Visions deal with change in the environment

and what is necessary for organizational adaptation. They posit ideal goals that raise the standards for the organization. They also convey an emphasis or focus on people within the company and/or its customers. This last quality means that visions provide a picture of new roles for organizational members as well as the centrality of consumers of organizational products.

Sashkin (1988a) described visioning as involving the expression of the vision, explaining the vision to others, extending the vision across a variety of organizational situations, and expanding the vision by “applying it in many different ways, in a wide range of circumstances, and to a broader context” (p. 130). Sashkin noted that each of these visioning behaviors can take place at all organizational levels; however, after Jaques (1986; Jacobs & Jaques, 1987), he argued that at successively higher levels of the organization, the time span for visioning becomes progressively longer until executives are establishing 5-15+ year visions. Also, executives have a broader system perspective than leaders at lower organizational levels.

Sashkin (1988a) offered several executive behaviors that are linked to visionary leadership. One is focusing subordinate attention on the critical points and key issues that comprise the vision. Another is developing two-way communication that provides an open forum for the transmission of a vision and information on how followers receive and respond to the vision. A third critical behavior is for the executive to demonstrate consistency and trustworthiness. Such consistency conveys the sincerity and value-based core of the executive’s vision. A fourth behavior is to convey respect for the subordinates. As suggested by House (1977) and Bass (1985), such executive behavior builds follower self-esteem and adds to their empowerment. Finally, visionary executives take personal risks for the purpose of conveying their commitment to the vision. According to Sashkin, these behaviors contribute to the charismatic effect of the executive.

One quality that distinguishes Sashkin’s model from other models of visionary leadership (House & Shamir, 1993) is his prescription that executive leaders need to show versatility in their operational leadership actions (Sashkin & Fulmer, 1988).

Such leaders evaluate what the situation requires and are able to respond accordingly. The implementation of a vision requires a range of both task-oriented and relationship-oriented behaviors. Thus, effective executives need to have the versatility to act in multiple and different ways depending upon situation needs and subordinate requirements.

Although Sashkin's (1988a) approach includes elements that are found in both charismatic and transformational leadership theories, he centers more attention on the nature and consequences of effective visions. While all theories of visionary and inspirational leadership obviously emphasize the visions of top organizational leaders, there has been insufficient attention paid to the critical components of this construct. Sashkin's model and other recent contributions (e.g., Nanus, 1992; Larword, Falbe, Kriger, & Miesing, 1995; Zaccaro et al., 1995) have begun to address this need.

Other Models of Visionary Leadership

As noted earlier, other models of visionary and inspirational leadership have been developed that describe the behavior of senior leaders in developing and implementing an organizational vision. These models have in common several of the elements associated with the primary models described in this chapter. Therefore, a description of these theories would be somewhat redundant with the ones already presented. However, a summary of these models that was developed by House and Shamir (1993) is shown in Table 8-2. The models are compared on the behaviors ascribed to organizational leaders who are attempting changes in organizational culture through the articulation of a vision and the empowerment of subordinates.

Table 8-2. Behaviors Specified in Charismatic, Transformational, and Visionary Theories of Leadership

Behaviors	Weber, 1947	House, 1977	Burns, 1978	Bass, 1985	Bennis & Nanus, 1985	Conger & Kanungo, 1987	Sashkin, 1988	Shamir et al., 1991
Visionary	X	X	X	X	X	X	X	X
Frame Alignment								X
Empowering: Showing confidence in and respect for followers		X	X	X	X	X	X	X
Empowering: Setting challenging expectations	X							X
Role modeling: Setting personal example	X	X		X		X	X	X
Role modeling: Showing self-confidence	X	X		X			X	X
Image Building: Establishing trustworthiness		X				X	X	X
Image building: Displaying competence	X	X				X	X	X
Behaving exceptionally	X				X	X	X	X
Taking risks	X				X	X	X	X
Supporting: Showing consideration and/or concern				X			X	
Adapting: Showing versatility							X	
Environmentally sensitive						X	X	
Intellectually stimulating				X				X

Note: Adapted from "Toward the integration of transformational, charismatic, and visionary theories," by R.J. House & B. Shamir, in *Leadership theory and research: Perspectives and directions* (p. 85), by M.M. Cherners & R. Ayman, 1993, San Diego, CA: Academic Press. Copyright 1993 by Academic Press. Reprinted by permission of Academic Press, Inc.

VISIONARY LEADERSHIP AND REQUISITE LEADER CHARACTERISTICS

The role requirements of executive leadership prescribed by vision-based models suggest a number of key executive characteristics that facilitate visionary leadership. Specifically, leader qualities that enhance executive leadership include those that promote the development of an effective vision, as well as those that enhance the leader's ability to elicit trust, an emotional attachment and a strong organizational commitment from followers. Several models of visionary and inspirational leadership have proposed a number of such qualities. These are summarized in the following sections:

Cognitive Abilities

The development of an effective vision requires that the leader be able to derive an adaptive and appropriate fit between the organization and its environment at some future point in time. This point can be 15 to 20 years in the future for leaders at the top of the organization (Jacobs & Jaques, 1987; Lewis & Jacobs, 1992; Sashkin, 1988a). Thus, senior leaders are required to create a logical framework from highly ambiguous and complex data. Further, they need to understand the complexity of their organization and its congruence with their emerging vision. This suggests that several cognitive abilities such as creativity, reasoning skills, and intelligence are necessary for effective visionary leadership (Atwater, Penn, & Rucker, 1991; Sashkin, 1988a,b; Tichy & Devanna, 1986a, 1986b).

Sashkin (1988a, 1992) argued that the ambiguity of both the environment and the organization, particularly as they must correspond at a distant point in the future, requires cognitive complexity in the visionary leader. After Jaques (1986), Sashkin (1988b) also added four cognitive skills related to the leader's *expression, explanation, extension, and expansion* of his or her vision. Kanungo and Conger (1992) agreed, emphasizing the communication requirements of successful charismatic leadership and skill in articulating a vision. Vision articulation is the first step in a successful implementation of the vision.

within the organization. This contribution suggests that crystallized cognitive skills such as verbal expression are critical competencies of visionary leaders.

Self-Confidence

Several researchers argued that to be effective visionary leaders needed high self-confidence (Atwater et al., 1991; Bass, 1985; Boal & Bryson, 1988; House, 1977; House & Howell, 1992). High confidence helps leaders develop an innovative vision and confront the difficult challenges in implementing it. By displaying a strong sense of confidence, leaders convey a positive message to their followers about the feasibility and workability of their vision. It also facilitates the trust necessary for successful vision implementation.

Related to self-confidence is a strong sense of personal control. Sashkin (1992) argued that a successful visionary leader needs high self-efficacy or the belief that he or she can effectively confront difficult challenges. Likewise, Howell and Avolio (1993) proposed that transformational leadership requires an internal locus of control; internal leaders act from the belief that they can have significant control over the direction and nature of organizational events. House and Howell (1992) suggested that self-efficacy, self-confidence, and an internal locus of control will affect the influence tactics selected by leaders. When the leader is self-confident, he or she is more likely to select supportive and rational modes of influence (i.e., such as those related to transformational leadership). Low self-confidence leads to more reward-based or coercive modes of leader influence.

Socialized Power Motive

History is replete with examples of constructive and destructive charismatic leaders. A major distinction between each type of charismatic is that constructive charismatics are more likely to be operating from high-power needs but with a socialized orientation or what McClelland (1985) terms “activity inhibition.” House and Howell (1992) posited activity inhibition

as a key characteristic of effective (defined as constructive) charismatics. After McClelland, they defined this characteristic as “an unconscious motive to use social influence, or to satisfy the power need, in socially desirable ways, for the betterment of the collective rather than for personal self-interest” (p. 95).

Sashkin (1988a) also noted that socialized power motives lead to the leader’s predisposition to empower subordinates.

Personalized power will engendered the opposite behavior pattern, where all power is retained by the leader.

Risk Propensity

Conger and Kanungo (1987, 1992; Kanungo & Conger, 1992) argued that the attribution of charisma derives from the leader articulating a vision that is unconventional and counters the status quo. Further, this attribution occurs when the leader takes personal risks in the service of this vision. Thus, a strong propensity for risk taking appears to be a critical aspect of the personality of successful visionary leaders.

Tichy and Devanna’s model of transformational leadership (1986a, 1986b) makes a similar point. They argued that such leaders are intellectually and emotionally courageous. They understand when it is possible to confront a painful reality and when the risk is too strong to pursue. Also, they are able to resist conformity and risk saying things to their subordinates that are unpalatable.

Social Skills

Conger and Kanungo (1987) argued that to be effective, charismatic leaders need to be sensitive to and acutely aware of environmental contingencies and realities. They also noted that such leaders are “sensitive to both the abilities and emotional needs of followers, and they understand the resources and constraints of the physical and social environments in which they operate” (p. 643). Thus, another critical competency for successful visionary leadership is social perceptiveness and sensitivity (Zaccaro, Gilbert et al., 1991). Further, the need for

such leaders to articulate and “sell” a vision to their subordinates means they need to have strong persuasion and negotiation skills.

Nurturance

The focus of transformational leaders on the empowerment and development of their subordinates requires that they have orientation toward helping others and being concerned with their progress. Accordingly, some theorists have associated successful leadership with a nurturant and empathetic personality (House & Howell, 1992; Ross & Offermann, 1991). This factor is associated with Bass's (1985) individualized consideration aspect of transformational leadership. For example, he noted that personal counseling is an important dimension of successful military leadership, although its focus will change across ranks. At lower levels (e.g., lieutenant and captain), personal counseling skills involve the ability to listen, identify personal problems, and encourage subordinates to express the emotional aspects of their problems to fully understand them. At upper ranks (e.g., colonel and general officers), these skills more often involve reinforcing a better fit between subordinate needs and job requirements. Here, the leader is attuned to signs of distress that are engendered by a poor fit. These differences by rank in the nature of counseling skill requirements, however, may be attributed to differences in the age and emotional maturity of the subordinates at upper versus lower military ranks.

MEASUREMENT

The key dimensions of visionary leadership reflect a variety of influences on subordinate commitment, attitudes, and work effort. The most systematic attempt to assess these dimensions is Bass's Multi-factor Leadership Questionnaire (MLQ). This survey instrument assesses seven leadership factors subsumed under the categories of transformational, transactional, and laissez-faire leadership. These factors have emerged from several factor analyses of early scales (Bass, 1985; Hater & Bass, 1988; Waldman, Bass, & Einstein, 1987). The four factors of

transformational leadership by Bass and Avolio (1993, pp. 51-52) are summarized as follows:

- **Charisma or idealized influence:** Leaders are trusted and seen as having an attainable mission and vision. Sample item: "Has my trust in his or her ability to overcome any obstacle."
- **Inspirational motivation:** Leaders provide symbols and simplified emotional appeals to increase awareness and understanding of mutually desired goals. Sample item: "Uses symbols and images to focus our efforts."
- **Intellectual stimulation:** Leaders encourage their followers to question their own way of doing things or to break with the past. Followers are supported for questioning their own values, beliefs, and expectations, and for thinking on their own and addressing challenges. Sample item: "Enables me to think about old problems in new ways."
- **Individualized consideration:** Followers are treated differently but equitably on a one-to-one basis. They are also provided with learning opportunities. Sample item: "Coaches me if I need it."

These factors reflect transformational leadership as a process of changing follower attitudes, beliefs, and motivation to reflect a stronger commitment to the leader's articulated vision. These factors define the essential components of subordinate empowerment.

Bass and Avolio (1993, p. 52) defined the following as transactional leadership factors:

- **Contingent reward:** Involves a positively reinforcing interaction between leader and follower that emphasizes an exchange (e.g., the leader provides appropriate rewards when followers meet agreed on objectives). Sample item: "Makes sure there is close agreement between what he or she expects me to do and what I can get from him or her for my effort."

- **Management-by-exception:** Leaders intervene only when things go wrong. They may remain passive until problems emerge or that may arrange to more actively monitor the performance of followers so as to intervene when followers make mistakes. Sample item: "Takes action only when a mistake has occurred."

These factors reflect an exchange or transaction whereby subordinates provide work effort while the leader structures and facilitates the path to subordinate goal attainment. In essence, the leaders provide rewards and support for the subordinates' acceptance of work structure, rules, and procedures. Deviations are met with punishment and discipline. The description of management-by-exception includes both an active and passive mode (Bass, 1996). The active mode refers to the establishment of procedures to monitor subordinate compliance with work procedures and to detect problems in a timely manner. The passive mode refers to the leader's intervention only when problems are already apparent. This passivity is noted more strongly in the last factor, defined by Bass and Avolio (1993, p. 53) as nonleadership:

- **Laissez-faire:** Leadership is absent. Intervention by the nominal leader is avoided. Decisions are often delayed; feedback, rewards, and involvement are absent; and there is no attempt to motivate followers or to recognize and satisfy their needs. Sample item: "Doesn't tell me where he or she stands on issues."

The MLQ contains the major dimensions of transformational leadership as well as items assessing transactional leadership and nonleadership. The transformational leadership factors include charisma, effectively subsuming the work of House (1977) and Conger and Kanungo (1987, 1992). This factor reflects the vision setting role of leaders; one of the behavioral indicators of this construct is that the leader "transmits a sense of joint mission and ownership" (Bass & Avolio, 1983, p. 56). The factor "inspirational motivation" also contains vision setting behaviors. One such behavioral indicator that reflects this factor is that the leader "presents an optimistic and attainable view of the future" (Bass & Avolio, 1983, p. 56). Thus, the MLQ appears

to be applicable to multiple theories of inspirational or visionary leadership.

The MLQ has been administered to many samples of leaders at all organizational levels. These samples have been gathered worldwide from a diverse number of groups, organizations (profit and nonprofit), and institutions. To date, the MLQ has demonstrated strong psychometric properties. The evidence regarding these properties will be presented in Chapter 9.

LEADER DEVELOPMENT

Life History Influences

Several researchers have described approaches to the training and development of visionary and inspirational leadership (e.g., Avolio & Gibbons, 1988; Bass, 1996; Conger & Kanungo, 1988; Kouzes & Posner, 1987). A central issue that has emerged is how much of such leadership can be trained. Avolio and Gibbons (1988; see also Gibbons, 1986) argued that transformational leadership emerges from a pattern of life history events that contribute to an individual's sense of leadership as a transforming process. They described seven key background elements that were derived by Gibbons (1986) from her administration of the MLQ to top corporate executives, followed by extensive interviews with these individuals to gain some understanding of their life histories. These elements are (Avolio & Gibbons, 1988, pp. 289-290):

- A predisposition is established as a result of parental encouragement and expectation to set high standards for achievement, which extends to many arenas of life.
- The family situation, conditions, and circumstances may be difficult and often demanding, but sufficient resources, both individual and systematic, are available to avoid being overwhelmed.
- The individual learns how to deal with his or her emotions, including conflict and disappointment and their effects, as well as other emotions and feelings.

- The leader has had many previous leadership opportunities and experiences in a variety of settings.
- The leader has a strong desire to engage in developmental work, especially as adults. Such work is undertaken in a conscious and deliberate way, and it becomes so much a part of transformational leadership that it appears automatic.
- Workshops, events, other more formal, structured developmental activities, and relationships with influential people who may also have been role models are used to augment and enhance the developmental orientation and process.
- The leader views all experiences as learning experiences and demonstrates a strong tendency to be self-reflective and to integrate.

This research, as well as other studies by Avolio (1994) and Bass and Avolio (unpublished, cited in Bass, 1996, pp. 108-111), suggested that transformational and inspirational leadership is in part grounded in a life-spanning developmental orientation. This does not mean, though, that such forms of leadership are immutable to targeted developmental efforts. Indeed, Avolio and Gibbons (1988) provided several recommendations for developing leaders in organizations, including the use of focused workshops and interventions. Further, Avolio and Bass (1991; described also in Bass, 1996) developed a training program called the Full-Range Leadership Program (FRLP) to develop transformational leaders.

Full-Range Leadership Program. The FRLP involves two workshops, the first basic and the second advanced, that are organized around 13 modules. This program begins with an administration of the MLQ and a presentation of the principles of transformational and transactional leadership. The intention is to have participants learn about how to display both forms of leadership and to learn their own weaknesses with respect to each form. Then, they learn new approaches to leadership that reflect less management-by-exception and a more transformational orientation.

The basic course includes eight modules (Bass, 1996). The first has participants explore their own implicit theories of leadership. They are asked to describe a leader from their own experiences. The ensuing discussion is intended to illustrate how the defining elements of these leaders reflect transformational principles. The second and third modules are designed to educate participants regarding the components and key behaviors associated with transformational leadership. The fourth module involves the administration of the MLQ and an exploration of the participants' leadership profile. The product of this module is a self-development plan that is intended to foster growth in particular areas of weakness identified in the leadership profile.

The remaining four modules are intended to facilitate the learning and development of transformational leadership behaviors. Module 5 involves videotaped role play and discussion. Module 6 fosters the effective delegation of responsibility, a key element of subordinate empowerment. Module 7 is a follow-up discussion of each person's leadership profile as displayed during previous modules, exercises, and interactions. Finally, module 8 focuses on organizational constraints and blocks to each participant's self-development plan.

The basic workshop is followed by a 3-month interval during which the participants are expected to practice and refine learned skills. They are assigned readings and case studies and are asked to identify an organizational problem that will be the focus of the advanced workshop. This latter workshop includes five modules, the first of which is a progress review and discussion of the participant's leadership development plan. The next module examines the role of values in leader decisionmaking, particular with respect to resource allocation decisions. Module 11 involves group discussions of the various organizational problems submitted by participants. The groups are encouraged to use creativity and intellectually stimulating strategies to resolve these problems. Module 12 focuses on organizational climate and culture issues; participants explore desired changes in their organization and ways of facilitating

these changes from a transformational perspective. The final module concerns the development of organizational vision. After completing the advanced work shop, participants are encouraged to complete a 6-month follow-up work shop.

Bass (1996) indicated that the FRLP program has already been completed by more than 1,500 leaders. He described several evaluations of this program that are reviewed in Chapter 9. This program differs from others described in earlier chapters in that development occurs primarily through targeted instruction. However, three other factors are more consistent with other developmental perspectives. First, as indicated by Avolio and Gibbons (1988), an orientation toward transformational leadership emerges from certain life history patterns; thus, Avolio and Gibbons (pp. 302-303) indicated that leader developmental plans

should have a life span orientation with respect to how the individual leader will build on his or her strengths while reducing his or her weaknesses. The plan must be individually oriented, keyed to earlier life events . . . and flexible enough to accommodate changes in the individual and in the context in which he or she operates.

The second factor is that the FRLP involves several components that foster the generalization of learned skills into the workplace. Thus, participants are encouraged to consider transformational leadership in the context of their own organizations. Finally, FRLP incorporates the notion of pushing leaders to the limits of their current ways of thinking and behaving, a developmental practice that is recommended by theorists from both the conceptual and behavioral complexity perspectives of executive leadership development. Thus, leaders are encouraged in the workshops to think creatively and in novel ways about their work situations. What is missing, though, is an on-the-job mentor or facilitator that can encourage such thinking.

In sum, Bass and his colleagues provided a leader development program that is designed to foster important transformational leadership competencies. This program makes effective use of an assessment instrument also keyed to these

competencies. The program incorporates a number of elements related to the envisioning process as well as to the facilitation of subordinate empowerment. Thus, while it was developed from the conceptual framework of transformational leadership theory, it is congruent with several other inspirational and visionary leadership models described in this chapter.

SUMMARY AND EVALUATION

Key Questions for Evaluation of Inspirational/Visionary Models of Executive Leadership:

- How do executive leadership performance requirements differ from such requirements at lower organizational levels?
 - Where do these role requirements shift in quality across organizational levels?
 - How is leader effectiveness and influence defined and operationalized at different organizational levels?
 - What is the relationship between the accomplishment of executive performance requirements and organizational effectiveness?
 - What individual characteristics distinguish executive from lower level leaders?
 - What individual characteristics distinguish successful from unsuccessful executive leaders?
 - What developmental interventions have emerged from conceptual models of executive leadership?
-

The inspirational and visionary models of leadership have become one of the most prominent leadership perspectives in the 1980s and 1990s. However, while these are perhaps the most visible of recent theories, they are perhaps the least directed explicitly to executive-level leadership. To review, conceptual

complexity theories articulate a clear distinction in leadership requirements at different organizational levels. Behavioral complexity models contain the more implicit assumption that executives need to enact a greater diversity of organizational roles than lower level managers. For the most part, these models are explicitly focused at top organizational levels. Strategic decisionmaking models also refer almost exclusively to executive leaders. While several visionary leadership models are focused on executive-level leadership, one of the most prominent, Bass's transformational leadership theory, does not suggest that qualitative differences exist in the performance requirements of leaders across organizational leaders. Instead, leaders at all levels can be transformational or inspirational with respect to their subordinates.

Like the behavioral complexity and strategic decisionmaking models, but for different reasons, the visionary leadership models do not reflect all of Day and Lord's (1988) suggestions for a systematic theory of executive leadership. These models, particularly transformational leadership theory, considerably blur the distinction between upper and lower level leadership requirements. Or, some of these models, such as those describing charismatic leadership, treat subordinates as passive recipients of overwhelming leadership influence. Top executives may exert a charismatic influence on the organization as a whole, with other lower level executives and managers contributing little to this influence except to maintain it. There is not a systematic attempt, such as that offered by Stratified Systems Theory, to articulate differences in leader contributions and requirements across levels. Thus, there is not a basis for specifying the requisite leader performance requirements that change across organizational levels.

Another difference between visionary leadership models, again transformational leadership theory in particular, and the other models presented in this report is the general lack of specification of the leader's boundary-spanning or external systemic role. Much of the conceptual focus is on the internal dynamics of organizational leadership and organizational change. While Sashkin (1988a) and Nanus (1992) discussed

vision development as reflecting in part an external focus, the major focus of these and most other visionary leadership theories is on facilitating organizational and subordinate acceptance and commitment to an articulated vision.

Alternatively, the visionary leadership models offer useful information to the other perspectives discussed in this report by delineating the ingredients and determinants of this subordinate influence process. Such models describe in greater detail some of the roles prescribed by the behavioral complexity models (e.g., visionary/innovator; mentor). They also provide a framework regarding strategic and vision implementation that is lacking in the strategic decisionmaking models. Finally, the internal systemic perspective of executive leaders is articulated more forcefully by the visionary leadership models than in Stratified Systems Theory, which focuses predominantly on the executive's external systemic perspective.

Two other contributions by transformational leadership theory are its measurement of such leadership and a leader developmental intervention that is grounded in the postulates of Bass's model as well as in other developmental theories (see Avolio & Gibbons, 1988, for a discussion of these theories). Thus, more than other perspectives, this approach provides a well-researched assessment tool that is integrated in a leader training program—the Career Path Appreciation Technique based on Stratified Systems Theory (Stamp, 1988) holds similar promise, but requires additional validation research. Further, the work of Avolio and Gibbons (1988) and Gibbons (1986) provides a life history perspective of transformational leadership, as well as a context for leader development. This perspective is generally missing from other models of executive leadership development.

In sum, Bass's transformational leadership theory does not articulate clear cross-level differences in organizational leadership requirements, and pushes the essential character of executive leadership to lower level managers. This raises significant questions, in particular whether lower level managers develop visions that become operative within the organizational context. Most other models, such as the charismatic models as

well as those described in previous chapters, assign them the role of operationalizing and implementing organizational directions established by upper level executives. Nonetheless, the internal systemic focus of these theories and their focus of subordinate empowerment add a conceptual understanding of executive leadership that is lacking in other systematic approaches. Indeed, a full and comprehensive understanding of executive leadership is likely to emerge from an integration of each of the conceptual perspectives described thus far, especially if this integration reflects the bulk of empirical research also reviewed in this report.

Chapter 9

Models of Visionary/Inspirational Leadership: Empirical Review and Evaluation

This chapter examines empirical research regarding the conceptual models summarized in Chapter 8. Figure 9-1 presents a research model, similar to the ones provided in previous chapters, that is the basis for the postulates stated below. This model is based primarily on Bass's transformational leadership theory for two reasons. First, most if not all of the visionary leadership models are fairly compatible with this approach. Bass's theory includes the charismatic influence cited by House (1977) as well as the subordinate empowerment dimension that is part of other visionary leadership models. The second reason is that Bass's transformational leadership theory is perhaps the most comprehensive of these models, the most researched, and the only one that provides a systematic measurement and leader development system. Thus, much of the research examined in this chapter is based on that framework.

Visionary and inspirational leadership theories argue that the demonstration of several behavioral patterns by organizational leaders results in subordinate empowerment and commitment to a vision as well as in higher organizational performance. These patterns are charismatic or idealized influence, inspirational motivation of others, intellectual stimulation of others, and individualized consideration of others. These behavior patterns are in turn facilitated by several leader characteristics, including cognitive abilities, self-confidence, socialized power needs, a propensity for risk, and social and nurturance skills. While the model in Figure 9-1 indicates that leader assessment and development is based on these characteristics, Bass's measure, the MLQ, and his Full-Range Leadership Program reflect more directly the dimensions of

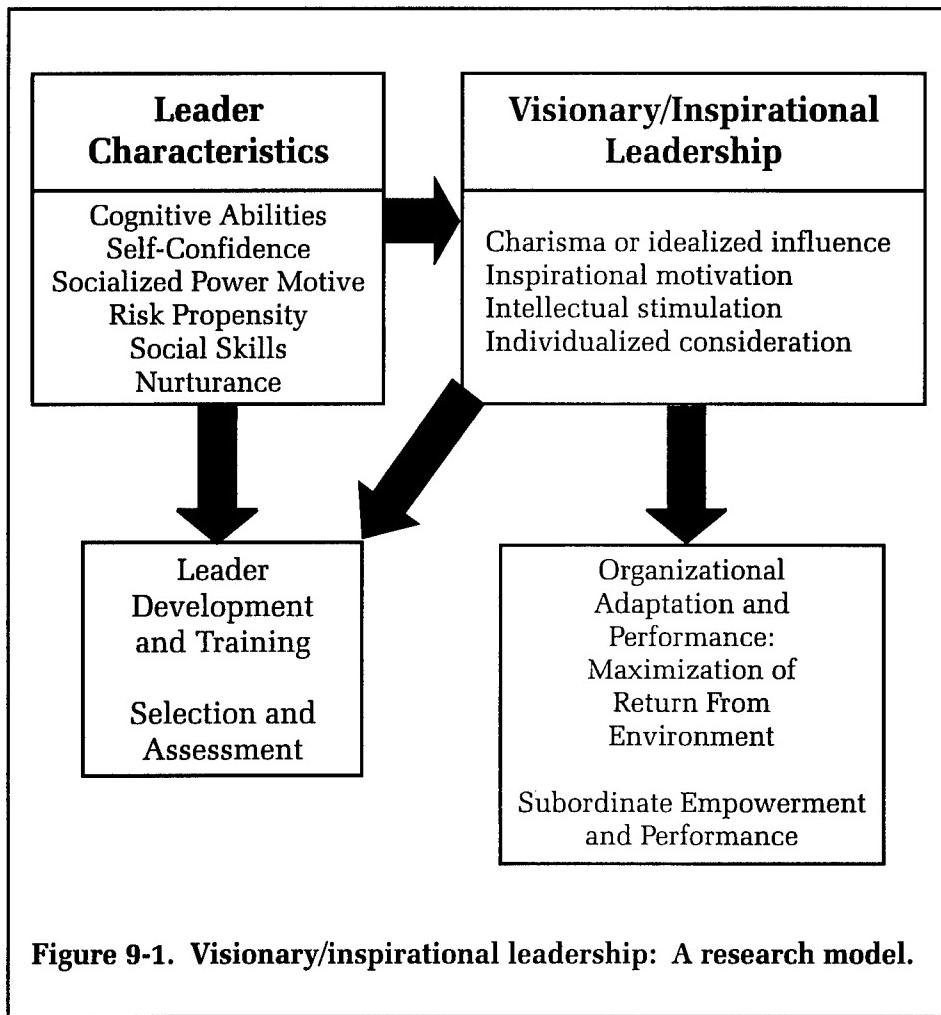


Figure 9-1. Visionary/inspirational leadership: A research model.

transformational leadership. Thus, a path in the research model is indicated from these dimensions directly to leader assessment and development.

The research postulates indicated in this chapter are derived from the research model in Figure 9-1 and from the conceptual models reviewed in Chapter 8. As in previous chapters, these postulates are based on the four themes of (a) the nature of organizational leadership performance requirements, (b) requisite leader characteristics, (c) measurement issues, and (d) leader development. Empirical research on the nature and

content of organizational vision is also included in the next section.

THE NATURE OF ORGANIZATIONAL LEADERSHIP

The Characteristics of Vision

Until recently there has been little if any systematic attempt to examine empirically the content of organizational visions. In one study, however, Larwood et al., (1995) asked 331 top executives from firms located across the United States to provide a short description of their organizational visions, and then to rate their visions using a set of descriptors (e.g., action-oriented, responsive to competition, long term, changing, directs effort, formalized, risky). Responses to these descriptors were then factor analyzed to uncover the content dimensions that characterized the visions of these executives. Participants in this study were also asked to provide information regarding their own characteristics (e.g., tenure, functional background, time span of their visions) and characteristics of their organization and its environment (e.g., rapidity of change in the organization and environment; importance of vision in organization and degree to which it is shared).

Larwood et al. (1995) reported that seven factors related to vision content were derived from their factor analysis. The first factor was labeled *vision formulation*. This factor referred to whether the vision reflected a long-term, strategic perspective. The second factor was termed *implementation*, and reflected the degree to which the vision was widely understood and communicated throughout the organization. Factor 3 was defined as *innovative realism*. This factor referred to the innovativeness of the vision and its flexible responsiveness to environmental changes. The remaining factors had fewer items loading on them and were termed *general* (or "difficult to describe"), *detailed*, *risk-taking*, and *profit-oriented*, respectively. Scores on these factors were associated with organizational and environmental characteristics. For example, executives who scored high on factor 1 were more likely to report that their

vision was important for their organization while high scorers on factor 2 were more likely to report that the organizational environment was rapidly changing and that their visions were more strongly accepted within the organization.

The content of visions reported by Larwood et al. (1995) reflect the definitions offered by several researchers (e.g., Kotter, 1990; Nanus, 1992; Sashkin, 1986). These visions have a long-term focus; they are innovative, i.e., different from the status quo; and they reflect environmental and organizational dynamics. What is missing, though, is a value orientation. Most definitions of vision suggest they often reflect the leader's idealized representation of what the organization *should* become (see Table 8-1). Accordingly, visions reflect the primary value orientation of the visionary. Values provide the passion and persuasiveness effective leaders have when conveying the desired image they have of their future organization to their subordinates; hence, values are the basis for the role of vision in facilitating organization-wide leader influence (Senge, 1990).

Senge (1990) argued that effective visions are grounded in positive values that reflect an aspiration for growth and long-term change. Negative visions are based on maintaining the status quo in the face of environmental changes. Regarding this distinction, Senge (p. 225) noted:

Negative visions are limiting for three reasons. First, energy that could build something new is diverted to "preventing" something we don't want to happen. Second, negative visions carry a subtle yet unmistakable message of powerlessness: our people really don't care. They can pull together only when there is sufficient threat. Lastly, negative visions are inevitably short term. The organization is motivated so long as the threat persists. Once it leaves, so does the organization's vision and energy.

Zaccaro et al. (1995) investigated the role of values in the contents of leader visions. They presented Army officers, ranging in rank from 1st and 2nd lieutenant to colonel, with a scenario requiring them to construct a vision monograph for the Army.

They were asked to rate the importance of 78 items for inclusion in the monograph. This set of items contained both growth oriented (or positive) and status quo (or negative) statements. Officers also selected the 10 most important items that characterized their vision. This represented the essence of their vision, defined as their *vision core*. The premise was that senior officers would rate growth-oriented values higher and status quo values lower than junior officers. Also, the vision core of senior officers should reflect a more growth-oriented value orientation than those of junior officers.

The analyses of statement ratings and selections supported this premise. For example, colonels reported more growth-oriented (instead of status quo) values as part of their organizational visions than lieutenants. Further, an analysis was completed on the percentage in each group of participants (i.e., lieutenants, majors, and colonels) that (a) selected no values as part of their vision core (i.e., "value-less visions"); or (b) selected only status quo values as the basis for their vision. The results indicated that this percentage was much higher for undergraduates and lieutenants than majors and colonels, with no colonel reporting a valueless vision and only 4% reporting a status quo vision. Officers were also asked to provide responses to complex problem solving exercises. Analyses of these responses indicated that officers with more growth-oriented visions developed higher quality solutions to these problems. These results indicate the importance of values as a component of effective visions.

Both of these studies provide information on the content of visions. However, they represent preliminary investigations; additional research is necessary to identify the components of vision that are (a) most important for organizational action, and (b) facilitate acceptance of, and commitment to, the vision in the organization. Further, the contents of leader vision needs to be associated with the process of envisioning. Such efforts should enhance an understanding of the role of vision in leader and organizational effectiveness.

Transformational Leadership and Organizational Performance

Transformational leadership theory, as well as other visionary leadership models, argues that a leader's displays of (a) charismatic influence, (b) inspirational motivation, (c) intellectual stimulation, and (c) individualized consideration influence subordinate motivation and commitment to an organizational vision. Bass (1985) also argued that the modeling of transformational leadership behaviors by upper level leaders increases the probability that lower level leaders will also display such behaviors, creating a cascading effect (see also, Avolio & Bass, 1988, 1995; Bass & Avolio, 1990; Bass et al., 1987). Thus, transformational leadership can generalize across organizational levels; other theorists argued that visionary leadership is more likely to be displayed by upper level leaders (Tichy & Devanna, 1990). Finally, Bass argues that both transformational and transactional leadership are necessary for effective leader and organizational performance, while Burns (1978) states that these forms are opposing leadership patterns.

These arguments suggest the following postulates regarding transformational leadership and organizational outcomes:

1. *The display of charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration by upper level leaders will be positively associated with the display of these qualities by lower level leaders.*
2. *The display of transformational leadership qualities by organizational leaders will be positively associated with subordinate commitment and empowerment.*
3. *The display of transformational leadership qualities by organizational leaders will be positively associated with overall organizational effectiveness.*
4. *Transformational leadership qualities will contribute to subordinate commitment and organizational effectiveness beyond the influence of transactional leadership qualities.*

Cascading influence of transformational leadership. Bass et al. (1987) examined the cascading premise of transformational leadership. They administered the MLQ to 56 first-level

supervisors who worked for the New Zealand government. These participants rated their own second-level supervisors; five subordinates of each participant also rated them using the MLQ. Bass et al. predicted that transformational leadership displayed at one managerial level would be positively associated with the amount displayed at the lower level. They found that indeed, ratings of charismatic influence, individualized consideration, and intellectual stimulation displayed by second-line supervisors were correlated with the same ratings of the first-line supervisors. One of the two transactional leadership factors, contingent reward, also yielded a significant cross-level correlation.

These data indicate a cascading effect of transformational leadership and provide support for postulate 1. Second-line supervisors who were rated as high on such leadership had subordinates who were also rated as displaying transformational leadership. However, as Bass et al. (1987) noted, this effect may not be a socialization one, where the second-line supervisors fostered the emergence of this leadership orientation in their subordinates. Instead, selection processes may have operated to create matches between supervisors; organizations and/or second-line supervisors may have selected compatible first-line supervisors, or the latter may have self-selected into their assignments. Thus, an appropriate test of postulate 1 would require a longitudinal design that examines changes in lower level leadership patterns as a function of transformational leadership modeling by upper level leaders.

The outcomes of transformational leadership. Hater and Bass (1988) examined the association between two elements of transformational leadership, charisma and intellectual stimulation, and performance ratings of 54 managers by their superiors. Ratings were made of each manager's judgement and decisionmaking, financial management, communication, persuasiveness, and risk taking. Subordinates of each manager provided ratings of both dimensions of transformational leadership as well as the manager's use of contingent reward. The results indicated significant correlations between the display of charisma and all of the performance ratings. Intellectual

stimulation of subordinates was correlated with financial management and communication. The use of contingent reward was not correlated with any of the rated effectiveness measures. Taken together, Hater and Bass's results support the proposed link between transformational leadership behaviors and individual leader effectiveness. They also suggest the superiority of vision-based leadership over more conventional leadership based on reward exchange.

Yammarino, Spangler, and Bass (1993) also investigated the effects of displayed transformational leadership on individual performance. The leaders in this study were junior naval officers. Senior subordinates provided ratings of each focal officer's display of charisma, individualized consideration, intellectual stimulation, and inspirational leadership as well as display of transactional leadership. They also provided ratings of subordinate satisfaction and the officer's effectiveness in meeting the job-related needs of subordinates. These items were combined into a measure of attributed performance. Yammarino et al. also collected performance ratings from each officer's superior as well as recommendations for early promotion. These ratings were combined into a measure of appraised performance. Yammarino et al. found that transformational leadership, but not transactional leadership, was significantly associated with both measures of officer performance.

Both of the aforementioned studies examined the link between transformational leadership and individual performance in junior leaders. Two studies by House and his colleagues (House et al., 1991; House, Woycke, & Fodor, 1988) examined charisma and performance in U.S. presidents. House et al. (1988) asked nine political historians to rate each U.S president on a measure of displayed charisma. Presidents rated as clearly charismatic or noncharismatic were selected for further analyses. Other raters also coded the biographies of two cabinet members for each president on whether rated charismatic presidents (a) displayed proposed charismatic behaviors, and (b) had a positive effect on their cabinet. House et al. (1988) also associated rated charisma with five independent rankings of presidential performance. They found that effective charismatics were higher

in the frequency of displayed charismatic behavior and positive influence on their cabinet than ineffective noncharismatics. However, effective charismatics were not different than effective noncharismatics on these measures, although because of a very low sample size (effective noncharismatics = 3), the power of this test was small. In the rankings of presidential performance, all but one of the charismatic presidents were rated as great or near great in each of the rankings. Most of the noncharismatics tended to appear at the bottom of the rankings.

House et al. (1991) followed this study with one that used ratings of presidential charisma from coded editorials, coded biographies by cabinet members, and from ratings provided by Simonton (1988). Presidential performance was assessed through several measures, including two separate surveys of historians who rated presidents on several performance dimensions (Maranell, 1970; Murray & Blessing, 1983), citations of "great decisions" for each president (Winter, 1987), and performance ratings of presidential biographies. The results of their analyses indicated that presidential charisma was associated with most of the various performance measures.

Taken together, these four studies support the premise that vision-based leadership, operationalized as display of charisma or transformational behavior, is associated with the performance of the individual leader. These studies suggest an association with organizational performance. Howell and Avolio (1993) assessed this relationship more directly by measuring transformational and transactional leadership in 78 managers from the top four organizational levels of a single company. They also acquired measures of the performance of each manager's consolidated unit. These measures were based on the achievement of targeted goals 1 year after measures of leadership were obtained. The results indicated that "leaders who displayed less management by exception and less contingent reward and more individualized consideration, intellectual stimulation, and charisma positively contributed to the achievement of business-unit goals" (p. 899). These findings confirm the findings of other studies (see Bass & Avolio, 1993, for a review) that transformational leadership appears to be a

Table 9-1. Correlations Between Dimensions of Transformational Leadership and Rated Effectiveness of the Organizations Led by the Described Leaders

Sample	Transformation Leadership Score				
	N	CH*	IL*	IS*	IC*
U.S. Army officers	104	.85	NA	.47	.70
New Zealand Professionals and managers	45	.56	NA	.52	.62
World-class leaders, student raters	67	.58	NA	.34	.40
New Zealand educational administrators	23	.76	NA	.66	.63
Division heads, <i>Fortune 500</i> high-tech firm	49	.72	NA	.44	.47
Indian professionals and managers	58	.59	.56	.54	.46
Project leaders, <i>Fortune 500</i> high-tech firm	75	.66	.44	.55	.55
Religious ministers, parishioners	28	.61	NA	.52	.54
Vice presidents, <i>Fortune 500</i> high-tech firm	9	.71	NA	.59	.53
Middle managers, <i>Fortune 500</i> high-tech firm	38	.75	NA	.60	.66
Middle-level managers at Federal Express	26	.88	.79	.79	.79
U.S. Navy junior officers	186	.87	.73	.74	.73
U.S. Navy senior officers	318	.83	NA	.72	.73
U.S. Army officers (NATO)	341	.72	NA	.61	.56
Canadian Army field-grade officers	226	.53	NA	.38	.53
German Army field-grade officers	167	.40	NA	.41	.38
Japanese middle-level managers	132	.62	NA	.50	.51

Note: * CH = Charisma

IL = Inspirational Leadership

IS = Intellectual Stimulation

IC = Individualized Consideration

Note: Adapted from a table, entitled, "Correlations of MLQ Scores Related to the Effectiveness of the Organizations Led By the Described Leaders (Form 5 Supervisors)," in "Transformational leadership: A response to critiques," by B. M. Bass & B. J. Avolio, in *Leadership theory and research: Perspectives and directions* (p. 67), by M. M. Chemers & R. Ayman, 1993, San Diego, CA: Academic Press. Copyright 1993 by Academic Press. Reprinted with Permission of Academic Press and B. M. Bass. Also, modified and reproduced by special permission of the Publisher, Consulting Psychologists Press, Inc., Palo Alto, CA 94303 from *Transformational Leadership Development - Manual for the Multifactor Leadership Questionnaire*, by Bernard M. Bass, Ph.D., and Bruce J. Avolio, Ph.D. Copyright 1990 by Consulting Psychologists Press, Inc. All rights reserved. Further reproduction is prohibited without the Publisher's written consent.

stronger influence on leader effectiveness than display of transactional leadership. This study, though, also provides evidence for the influence of visionary leadership on organizational performance.

Table 9-1 presents a summary by Bass and Avolio (1993) of other studies that administered the MLQ to leaders and assessed the effects of transformational and transactional leadership on various indices of performance. This table indicates correlations between dimensions of transformational leadership and the measure of rated performance that is also part of the MLQ. These correlations are uniformly high. A noteworthy aspect of this review by Bass and Avolio is that it includes leaders at all organizational levels. It must also be noted that these correlations are inflated by same source or method bias. Bass and Avolio reported, though, that studies which included different measures of transformational leadership and performance also reported significant, albeit lower, correlations (e.g., Avolio, Waldman, & Einstein, 1988).

The strength or magnitude of correlations between transformational leadership predictors and outcomes has varied widely across studies. Lowe, Kroecck, and Sivasubramaniam (1995) completed a meta-analysis of these correlations to determine the average magnitude of correlations adjusted for statistical and methodological artifacts. They examined several moderators of these correlations, including the organizational level of the leaders (upper or lower), the type of organization (public or private), and the nature of the criterion (subordinate perceptions or organizational measures). They also contrasted published and unpublished studies of transformational leadership. Based on five selection criteria, Lowe et al. identified 39 published studies and 17 unpublished studies of transformational leadership for inclusion in their meta-analysis.

Lowe et al. (1995) found a highly similar pattern of results across published and unpublished studies and accordingly combined the two samples. They also found that the transformational factors of charismatic influence (raw $r = .62$), individualized consideration (raw $r = .53$), and intellectual stimulation (raw $r = .51$) were all more strongly related to

outcomes than the transactional factors of contingent reward (raw $r = .34$) and management by exception (raw $r = .04$), with charismatic influence demonstrating the strongest association (inspirational motivation was not measured in many of these studies). The range of correlations for each of the transformational leadership factors suggested the presence of moderators. Accordingly, Lowe et al. found that the effects of transformational leadership were stronger in public versus private organizations and when using subordinate perceptions as criteria. The magnitude of the correlations with subordinate perceptions were on average about 40 points higher (mean raw correlation = .71) than the correlations with organizational measures (.30). However, Lowe et al. also noted that the latter correlations were still statistically significant. This study demonstrates both the strength of transformational leadership effects, as well as at least two moderators of these effects.

All of the studies described thus far were based on the MLQ. Using a different operationalization, Podsakoff, MacKenzie, Moorman, and Fetter (1990) examined the effects of transformational leadership on subordinate attitudes and commitment. This influence is critical to models of visionary and inspirational leadership, because a fundamental mechanism of organizational change used by such leaders is to empower subordinates and garner their commitment on behalf of the organization. Podsakoff et al. had subordinates in a diversified petrochemical company provide ratings of their manager on six behaviors: identifying and articulating a vision, providing an appropriate model, fostering the acceptance of group goals, high-performance expectations, providing individualized support, and providing intellectual stimulation. Followers also rated their own satisfaction, their trust in their leader, and their organizational citizenship behavior. Podsakoff et al. found that visionary leadership behavior was associated with both greater follower trust and satisfaction, and higher amounts of organizational citizenship behavior. Further, the influence of leadership on organizational citizenship was mediated entirely by follower trust. That is, leaders engender follower commitment to the organization by increasing their trust. These results held even when same source bias was controlled.

The central premise of visionary leadership theories is that senior organizational leaders, if not leaders at other organizational levels, are required to provide a vision to followers that inspires them to work hard on behalf of organization and to support necessary organizational change. If the vision is appropriate and followers provide effort and commitment, the result should be stronger organizational performance. The sample of studies presented here shows significant support for this premise. Likewise, Shamir, House, and Arthur (1993, pp. 578-579) provided the following summary from 35 empirical studies of charismatic leadership:

Collectively, these findings indicate that leaders who engage in the theoretical charismatic behaviors produce the theoretical effects. In addition, they receive higher performance ratings, have more satisfied and more highly motivated followers, and are viewed as more effective leaders by their superiors and followers than others in positions of leadership. Further, the effect size of charismatic leader behavior on follower satisfaction and performance is consistently higher than prior field study findings concerning other leader behavior, generally, ranging well below 0.01 probability of error due to chance, with correlations frequently ranging in the neighborhood of .50 or better.

Thus, taken together, these studies provide significant support for postulates 2 and 3. They demonstrate that the components of transformational leadership, as measured by the MLQ, are related to (a) organizational effectiveness and overall performance; (b) the leader's unit effectiveness; (c) ratings of the individual leader's performance; and (d) ratings of subordinates' satisfaction and commitment. These influences have been uncovered, not only with the MLQ, but also using other operationalizations of visionary and inspirational leadership. However, the question remains whether transformational leadership adds positive influence beyond transactional leadership.

Augmentation effects. The positive correlations between transformational and transactional behaviors, respectively, and

performance that were found in the meta-analysis by Lowe et al. (1995) and in the review by Bass and Avolio (1993) suggest that both forms of leadership improve leader effectiveness. Bass (1985) proposed that transformational leadership would augment the influence of transactional leadership on organizational outcomes. Burns (1978), however, suggested that these were opposing forms of leadership. Several studies provide evidence for the augmentation effect proposed by Bass (Avolio & Howell, 1992; Hater & Bass, 1988; Seltzer & Bass, 1987; Waldman, Bass, & Yammarino, 1990). Across these studies, this effect was examined through hierachial regression analysis in which transactional behaviors are entered at the first step, followed by transformational behaviors. The results are similar—transformational leadership adds significantly to the prediction of leader effectiveness beyond the influence of transactional leadership. These findings support postulate 4.

Summary. The studies of visionary and transformational leadership provide strong support for the premise that such leadership significantly enhances leader effectiveness and organizational performance. This connection has been uncovered in a variety of samples, using different operationalizations of visionary leadership and a range of organizationally related criteria. An interesting point is that visionary leadership has been demonstrated across all organizational levels. In fact, Lowe et al. (1995) reported in their meta-analysis that *mean* transformational leadership scores were actually higher for lower level organizational leaders than for upper level leaders, although the magnitude of correlations between these scores and organizational outcomes did not differ by level. Thus, in general, the data do not support the premise that transformational and inspirational leadership is a province primarily of top executives.

It should be noted that such leadership has been predominantly assessed as a subordinate interaction style. The four transformational leadership behaviors assessed by the MLQ, for example, refer to a pattern of interaction and influence with one's followers. The emphasis is on gaining their support and commitment, with attendant consequences for organizational

effectiveness. The MLQ does not systematically measure the long-term or strategic focus of visionary leadership. While leaders at multiple organizational levels may display a transformational orientation with their subordinates, the vision that should be the bedrock of such influence may emerge from upper level leaders. Alternatively, the subordinate empowerment that is intended as the product of transformational leadership means that they should have considerable input on the future direction of the organization. This suggests that vision may not necessarily cascade from the top of the organization, although this notion clearly contradicts other visionary leadership models as well as the research described in earlier chapters. Nonetheless, future research on transformational leadership needs to incorporate the notion of vision, and particularly its content (Larwood et al., 1995), into the process of such leadership.

REQUISITE LEADER CHARACTERISTICS

The conceptual models described in Chapter 8 and the research model presented in Figure 9-1 propose several personal characteristics as fostering the effective display of visionary and transformational leadership. The following postulates summarize these relationships. As with the other postulates offered in this chapter, these are specified from the perspective of transformational leadership theory, because of its conceptual and methodological universality:

5. Leader cognitive abilities will be positively associated with the effective display of charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration.

6. Leader self confidence will be positively associated with the effective display of charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration.

7. Socialized power motives held by a leader will be positively associated with his or her effective display of charismatic

influence, inspirational motivation, intellectual stimulation, and individualized consideration.

8. A propensity for risk possessed by a leader will be positively associated with his or her effective display of charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration.

9. Leader social skills will be positively associated with the effective display of charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration.

10. A nurturant orientation displayed by the leader will be positively associated with his or her effective display of charismatic influence, inspirational motivation, intellectual stimulation, and individualized consideration.

Much of the research on leader characteristics and effective visionary leadership has focused on motivational and personality qualities. In their examination of presidential charisma, House et al. (1991) assessed the motive patterns of each president by coding the content of presidents' inaugural addresses (Winter, 1987), letters, and speeches written by presidents, their autobiographies, and biographies written by others. The motives that were measured were affiliation, power, achievement, and activity inhibition. Presidential charisma was assessed from coded editorials, coded biographies by cabinet members, and from ratings provided by Simonton (1988). House, et al. found that, as predicted, charisma was positively related to need for power and activity inhibition. According to McClelland (1985) and House and Howell (1992), this combination of motives represents an orientation toward using power on behalf of others. House et al. also found the presidential charismatics were low on achievement motives; charisma was not significantly related to affiliation needs.

Smith (1982) compared two groups of effective leaders who were either high or low in charisma. Subjects were asked to identify leaders from their work environment who were effective and charismatic or effective but not charismatic. Questionnaires were then distributed to other followers of the leader assessing

their perceptions of the leader's self-confidence, as well as their trust in the leader, their departmental identification, and their job involvement. Leaders were also interviewed to gain an assessment of their developmental propensity. The results of analyses indicated that charismatic leaders were perceived as more self-confident than the noncharismatic leaders. Also, charismatics were found to be more concerned about the professional growth and development of their subordinates than noncharismatics. Followers of charismatics expressed stronger trust, loyalty, and commitment to their leaders than followers of noncharismatics. These data demonstrate support for self-confidence and nurturance as proposed characteristics of visionary leaders. Likewise, this study confirmed some proposed effects of charisma on follower attitudes.

Ross and Offermann (1991) also found support for nurturance as a quality of visionary leaders. They measured nurturance, self-confidence, dominance, pragmatism, need for change, and other personality characteristics in midcareer Air Force commissioned officers. Ratings on the MLQ were also gathered to provide transformational leadership scores for each officer. Their results indicated that the strongest personality correlates of such leadership were pragmatism (.69), nurturance (.67), and self-confidence (.63).

Atwater et al. (1991) asked subjects from a range of jobs and occupations in the military and civilian sectors to select a charismatic and noncharismatic leader. They then completed an extensive personality inventory for each leader. Charismatics were perceived as more insightful, confident, and determined than noncharismatics; they were also more likely to be perceived as risk takers and low on conformity.

Howell and Avolio (1993) examined locus of control as a characteristic of transformational leaders. Seventy-eight managers from the top four levels of a financial institution completed Rotter's I-E scale; their followers provided ratings of transformational leadership dimensions from the MLQ. The results indicated that managers who had an internal locus of control had higher scores on intellectual stimulation and individualized consideration, but not charisma, than managers

with an external locus of control. These results are the only ones to date to connect the leader's sense of personal control with his or her display of visionary leadership.

Taken together, these studies demonstrate support for some of the personal characteristics that are proposed as determinants of visionary leadership. Specifically, self-confidence, socialized power motives, risk propensity, and nurturance have been associated with one or more factors of transformational leadership. Thus, support has been demonstrated for postulates 6, 7, 8, and 10. Few if any studies have examined the link between cognitive and social abilities, respectively, and transformational leadership. Thus, evidence is lacking in support of postulates 5 and 9. This is surprising given the strong intellectual and social demands required of such leadership. For example, the intellectual stimulation of others would presumably require significant cognitive abilities and intelligence by the leader. Also, the communication and implementation of a vision that is at the heart of visionary leadership influence would indicate the importance of social skills and competencies. Thus, further research is necessary that specifically targets these sets of skills as determinants of effective visionary leadership.

It should be noted that many of the aforementioned studies reviewed report bivariate correlations that could represent spurious effects. Further, few, if any, studies have examined the association between proposed leader characteristics and such activities as the development of an effective vision and the implementation of this vision in a complex social domain. Some (although not all) of the studies suffer from same source bias in that followers provide estimates of both charisma and assessments of personality (e.g., Atwater et al., 1991). Thus, further research, particularly multivariate research, is necessary to validate proposed individual determinants of visionary leadership (see Atwater & Yammarino, 1993, as an example).

MEASUREMENT

The Multifactor Leadership Questionnaire was developed by Bass (1985) to assess the components of transformational, transactional, and laissez-faire leadership. To review, the MLQ measures four transformational leadership factors: charismatic or idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. It measures two transactional leadership factors: contingent reward and management-by-exception. Management-by-exception has both a passive (MBE-P) and active mode (MBE-A), where the latter refers to the establishment of active monitoring systems to catch rising problems. The final factor is laissez-faire leadership (or nonleadership).

The following postulate regarding the MLQ is examined in this section:

11. The Multifactor Leadership Questionnaire will exhibit acceptable levels of reliability, construct validity, and criterion-related validity.

The structure of the MLQ has emerged from several factor analyses of its items. The first such analysis by Bass (1985) was completed on 176 U.S. Army colonels and yielded the five factors of charismatic influence, contingent reward, individualized consideration, management-by-exception, and intellectual stimulation. Hater and Bass (1988) also completed a factor analysis of the MLQ and reported a similar structure except that they divided management-by-exception into an active and passive mode. Howell and Avolio (1993) used a more stringent confirmatory analysis strategy (i.e., they adopted a partial least-squares analysis and used only factor loadings mostly greater than seven) and reported the same factor structure. These studies provide support for six of the components of transformational leadership. Items reflecting inspirational motivation loaded on the charismatic influence factor; still, Bass (1996) argued for a conceptual distinction between these two factors.

The internal consistency estimates are strong for all of the scales except for management-by-exception. Lowe et al.'s (1995)

meta-analysis of 56 studies indicated mean Cronbach alphas to be .92 for charisma, .88 for individualized consideration, .86 for intellectual stimulation, .82 for contingent reward, and .65 for management-by-exception. However, the management-by-exception scale in the studies reviewed by Lowe et al. combined the active and passive modes. Howell and Avolio (1993) examined these subscales separately and reported internal consistency estimates of .86 and .72, respectively, for the active and passive modes of management-by-exception. Thus, the three transformational leadership factors and three transactional leadership factors (including MBE-A and MBE-P) exhibit acceptable levels of internal consistency. However, the meta-analysis by Lowe et al. and reviews by Bass (1990, 1996) and Bass and Avolio (1993) did not report any studies providing test-retest reliabilities.

As indicated in Table 9-1 and in reviews by Bass (1990, 1996), the criterion validity of the transformational leadership factors has been amply demonstrated for subordinate satisfaction and leader performance. However, a number of questions remain regarding the construct validity of the MLQ transformational leadership factors. The factor analyses do suggest six distinct factors. However, although Bass (1996) argued for the conceptual divergence of inspirational motivation, no empirical evidence supports this distinction. Bass and Avolio (1993) also argued that individualized consideration is conceptually different from the consideration construct measured by the Leader Behavior Description Questionnaire (LBDQ). However, Seltzer and Bass (1990) reported a correlation of .69 between these two measures, a magnitude that is too high for discriminant validity. These reviews, as well as that of Bass (1990), do not report any attempt to validate the remaining constructs assessed by the MLQ, using for example a multimethod-multitrait approach (Campbell & Fiske, 1959). Thus, additional research is necessary to ascertain the construct validity of these constructs.

In sum, the studies of the psychometric properties of the MLQ have yielded mixed support for postulate 11. The internal consistencies and criterion-related validities of the transformational leadership factors are fairly strong. The factor

analyses completed by several researchers support the proposed distinctiveness among the measured constructs. However, additional evidence is needed to fully determine the convergent and discriminant validity of these constructs.¹

LEADER DEVELOPMENT

Avolio and Bass (1991; also reported in Bass, 1996) designed the Full-Range Leadership Program (FRLP) as an in vitro training intervention to develop transformational leadership skills in leader role incumbents (or potential leaders). To review, this program contains 13 modules that are designed to (a) teach the principles of transformational and transactional leadership; (b) develop in participants an understanding of their own leadership profile and develop a plan to improve weaknesses; (c) have participants learn and practice the skills of transformational leadership; and (d) confront and resolve issues connected with the transfer and practice of these skills in the participants' organizations. Eight modules make up the first, or basic, workshop; the remaining five modules comprise an advanced workshop that is completed 3 months after the basic workshop.

Bass (1996) reported two unpublished studies that evaluated the effectiveness of the FRLP. The first study, by Crookall (1989), used a Solomon four-group design that contrasted the FRLP with the Hershey-Blanchard situational leadership development program and with two control groups. The sample were supervisors of inmates working in prison shops. Criteria included productivity, absenteeism, and prosocial behavior. In describing the results of this evaluation, Bass reported that (p. 123):

Significant training effects were obtained on such outcomes as productivity, absenteeism, and the prosocial behavior of the inmates who worked for the trained supervisors. Specifically, compared with untrained

¹ A study by Aviolo, Bass, and Junq (1996) that appeared too recently to be fully included in this report offered some evidence for the convergent and divergent validity of the MLQ, based on a confirmatory factor analysis of its items.

supervisors, trained supervisors were found to be more effective leaders on a variety of specific measures of organizational and individual level outcomes. More dramatic effects were reported for the FRLP than for situational leadership although both forms of training were found to the shop supervisor's performance.

The performances of both trained samples improved, but in comparison to the three other groups of supervisors, those who were trained in transformational leadership did as well or better at improving productivity, absenteeism, and "citizenship" behavior among the inmates; they also won more respect from the inmates.

These outcomes reflect Kirkpatrick's behavioral and results-oriented training criteria and indicate a considerable level of success regarding the FRLP. Another evaluation study by Avolio and Bass (1994) that was described in Bass (1996) also provided evidence for the FRLP's success in developing transformational leadership skills. This was an evaluation of 66 participants from several companies who completed both the basic and advanced workshops as well as a follow-up module 6 months to 2 years after the advanced workshop. The data from these participants were derived from pre- and post-test self-ratings, ratings by followers, questionnaires, and structured interviews. The results indicated a significant increase in rated transformational behaviors (except for individualized consideration) as well as a significant decrease in management-by-exception. Participants also reported positive affective reactions to the program.

Combined, these two evaluations provide evidence for the effectiveness of the FRLP. Participants report high levels of satisfaction with the program. They appear to learn the transformational skills and transfer them to their work settings, as reported by their subordinates. Finally, the data indicating reduced absenteeism and higher performance in subordinates that was reported by Crookall (1989) suggest significant gains in organizational results. The use of subordinate respect and performance as criteria in this study is particularly important because they reflect significant intended outcomes of

transformational leadership. Thus, the FRLP appears to improve the work behavior and attitudes of the subordinates of participants as well as the skills of the participants themselves.

MODELS OF VISIONARY/INSPIRATIONAL LEADERSHIP: GENERAL CONCLUSIONS

This empirical review of visionary, inspirational, and transformational theories of organizational leadership suggests the following conclusions regarding the relationships depicted in Figure 9-1:

- Three characteristics of transformational leadership—charismatic influence, individualized consideration, and intellectual stimulation—have been consistently associated with subordinate attitudes and commitment, leader performance, and unit or organizational effectiveness. These associations have been found in leaders at all organizational levels.
- Transformational leadership behaviors displayed by upper level leaders is generally associated with the display of similar behavior patterns by lower level leaders.
- Transformational leadership behaviors augment the effects of transactional leadership behaviors on leader and organizational effectiveness.
- Leader characteristics related to self-confidence, socialized power motives, nurturance, and risk propensity have been associated with the display of transformational and charismatic leadership. Little evidence is available linking cognitive and social skill to the display of such leadership.
- The MLQ has demonstrated acceptable internal consistency and criterion-related validity. It has also yielded a stable factor structure. However, the construct validity of its components has not been amply demonstrated.

- A leader development program based on transformational leadership theory has demonstrated effectiveness in terms of enhancing transformational leadership skills in participants, and increasing the attitudes and performance of the subordinates reporting to these participants.

This review illustrates the importance of inspirational leadership for organizational effectiveness. Such leadership facilitates the implementation of the long-range strategies and visions that are developed by top leaders. The conceptual complexity and strategic decisionmaking models of executive leadership that were examined in earlier chapters provide a more extensive description of strategic formation processes than of strategic implementation. Behavioral complexity models highlight the leader's role in implementation, but do not describe the processes connected with this role. The models and research reviewed in this and the previous chapter define the nature of such processes in terms of requisite leadership patterns. Further, they specify the leadership characteristics that facilitate vision and strategic implementation. Thus, the visionary and inspirational models provide an important complement to the other approaches to executive leadership.

A number of studies cited by Bass & Avolio (1993) and in the meta-analysis by Lowe et al. (1995) reported significant levels of transformational leadership behaviors in lower level leaders. Indeed, Lowe et al. found that the mean rating of such behavior was actually higher for lower level than for upper level leaders. Thus, this empirical research and the conceptual models that underlie this research do not support the notion explicit in the other models described in this report that there are qualitative differences in leadership requirements across organizational levels. The nature of effective leadership, defined in terms of transformational influence of subordinates in line with an organizational vision, appears to be the same for leaders at all levels of the organization. However, the vision that is the basis for this influence *is* more likely to emerge from individuals in top leadership positions. If the effectiveness of transformational leadership influence is at all grounded in the content and quality

of the leader's vision, and the development and promulgation of this vision is more likely the province of executive leaders, then further research is necessary to define more clearly the basis of leader vision and its association with the process of transformational leadership. Such efforts should lead to a more explicit specification of cross-level differences in the nature of visionary and transformational leadership in organizations.

As noted earlier, transformational leadership theory provides a conceptualization of vision and strategic implementation processes that is generally lacking in other theories of organizational leadership. This suggests that a full understanding of such leadership is likely to emerge from an approach that synthesizes and integrates the various conceptual perspectives described in this report and the empirical research derived from these perspectives. Such an approach, with accompanying recommendations for future research on military executive leadership, is presented in the last chapter of this report.

Chapter 10

Executive Leadership: An Integrated Model and Recommendations for Future Military Research

Four general conceptual perspectives of executive leadership have been presented in this report. Table 10-1 briefly summarizes the major points of each perspective regarding (a) the nature or role of executive leadership, (b) proposed executive requirements, (c) cross-level differences in organizational leadership, (d) requisite executive characteristics, and (e) major developmental prescriptions. As indicated in this table, each perspective emphasizes somewhat different aspects of such leadership. Conceptual complexity models, particularly Stratified Systems Theory, are the most explicit with respect to differences in leader performance requirements across organizational levels. These approaches emphasize the reflective and long-term planning dimensions of executive leadership. High-level conceptual skills are utilized to construct integrated causal maps of the organization and its environment that contribute to the development of a subsequent organizational action plan. Behavioral complexity models emphasize a variety of executive leader roles in addition to that of long-range planner. This leads to the premise that leaders need not only high conceptual skills, but also an ability to display and balance what may be competing behavioral and role requirements. Conceptual complexity models are grounded in the higher levels of information processing demands that confront top executives, while behavioral complexity models reflect higher social demands that also exist at such organizational levels.

Strategic management theories describe the planning and analysis processes by senior leaders as they seek a co-alignment (Thompson, 1967) between their organization and its respective environment. Their primary emphasis, then, is on the decisions

Table 10-1. Perspectives of Executive Leadership

Perspectives	Focus of Executive Leadership	Executive Performance Requirements	Changes in Performance Requirements in Ascending Organizational Levels	Requisite Executive Characteristics	Developmental Prescription
Conceptual Complexity	To provide a conceptual frame of reference for organizational processes and direction that corresponds to the complexity of the operating environment	Long-term planning and strategy making; boundary-spanning and environmental engagement; acquisition of organizational resources; network development and consensus building	Work and planning reflects a longer future time span; boundary spanning occurs increasingly with constituencies outside of the organization; leadership influence within the organization becomes increasingly indirect as leaders have charge of multiple organizational units	Conceptual capacity, flexible integrative complexity, interpersonal skills, knowledge of organization's operating environment, temperamental proclivity for reflective thinking and mental model building	Potential executives should be given challenging work assignments (i.e., stretch assignments), under the guidance of a mentor, that promote the emergence of more complex and comprehensive frames of reference
Behavioral Complexity Models	To balance and effectively enact multiple organizational roles having competing performance requirements	Balancing the following roles: mentor, facilitator, innovator, broker, director, producer, coordinator, and monitor	Demands and requirements from a greater variety of constituencies need to be balanced; need to enact a broader spectrum of organizational roles	Conceptual complexity, need for power, social intelligence, behavioral flexibility	Potential executives should be encouraged to break from habitual work roles and provided the opportunities to learn new roles
Strategic Decisionmaking Models	To create and manage a co-alignment between organizational elements and environment characteristics, through the development of a long-term strategy	Environment and organization scanning, information interpretation and sense-making; strategy formation and implementation	No clear differences articulated; however, executive leaders are more likely to be responsible for strategy formation, while more junior leaders are more likely to be responsible for day-to-day strategy implementation	Cognitive abilities, knowledge of operating environmental and functional expertise, need for achievement, locus of control, self-efficacy, risk propensity, flexibility	No clear prescriptions offered; the importance of functional expertise in this framework suggests that potential executives should be provided with work opportunities in many functional domains within the organization
Inspirational/Visionary Leadership Models	To change and manage organizational processes in line with an articulated vision; to inspire, motivate, and empower subordinates so that they share responsibility for organizational change	Charismatic or idealized influence of subordinates; providing inspirational motivation, intellectual stimulation, and individualized consideration to subordinates	No differences articulated; transformational leadership can occur at all organizational levels. However, some models suggest that guiding organizational visions are more likely to be articulated by executive leaders.	Cognitive abilities, self-confidence, socialized power motives, social skills, nurturance skills, risk propensity	Potential executives should be provided with opportunities for self-understanding regarding their own leadership styles, and training to learn both transformational and transactional leadership behaviors

made by top executives and the actions taken to implement those decisions. Strategy formation reflects a process of integrating the company's mission, internal resources, capabilities, and operating environment with the nature and dynamics of its contextual external environment, creating a set of long- and short-term objectives and strategies. These models examine strategy implementation primarily as a process of instituting policy and structural changes within the organization. Visionary leadership models describe the development of vision by top organizational leaders as a means of establishing co-alignment. This process is often described as much more idiosyncratic and value-based than the process of establishing organizational direction that is generally offered in strategic decision models, although the latter do incorporate executive values as perceptual filters in the environmental scanning process (Hambrick & Brandon, 1988; Hambrick & Mason, 1984; Starbuck and Milliken, 1988). Further, the implementation of a vision is described by visionary leadership models primarily as a process of creating psychological and behavioral change in subordinates by altering organizational climate and culture. The principle dynamic here is an empowerment of subordinates such that they commit to and "take over" vision or strategic implementation.

Despite these somewhat fundamental differences, each conceptual perspective shares a number of common elements with the others. For example, in line with Katz and Kahn (1966, 1978), each one describes executive organizational leaders as boundary spanners. Such leaders have a dual orientation, one toward the environment of the organization, with the task of discerning critical organizational requirements, the other toward the organization to manage its operations and facilitate its adaptability within a dynamic environment. While other managerial and functional positions in an organization engage in boundary spanning, most of these are from a short-term, strategic implementation perspective. That is, boundary spanning at lower managerial levels or as part of functional position requirements (e.g., managers in sales and marketing departments) occurs as part of day-to-day or monthly activities reflecting more immediate tasks and strategic goals. Executive boundary spanning reflects organization-wide representation in

the external environment for the purposes of scouting organizational opportunities and formulating new long-term strategic initiatives. Each of the four perspectives also emphasizes the executive's role in defining organizational direction and in the management of the organization in line with this direction. Thus, each one reflects Barnard's (1938) executive functions, mentioned in Chapter 1, of establishing organizational purpose and facilitating organization-wide coordination. In addition, the four conceptual models imply that leadership requirements change across organizational levels; generally, leadership work becomes increasingly more complex at upper organizational levels, although only Stratified Systems Theory specifies the nature of these differences in clear and operational terms. Finally, these different conceptual approaches offer a relatively common core of personal characteristics that facilitate the effective accomplishment of executive leadership requirements, although the relative emphasis on particular individual qualities shifts across models. Thus, while the conceptual frameworks described in this report present different notions of executive leadership, their similarities reflect the fundamental executive roles specified by Barnard (1938) and Katz and Kahn (1966, 1978).

AN INTEGRATED MODEL OF EXECUTIVE LEADERSHIP

While various conceptual models illustrate different factors associated with executive leadership, there is a significant value in synthesizing and integrating them into a single framework. Each framework emphasizes a different dimension of executive leadership, while ignoring other important aspects. Therefore, these perspectives offer incomplete descriptions of such leadership. An integrated model that combines the various models included in this report would capitalize on the contributions of each one and provide a more comprehensive framework for future research. Hunt (1991) provided one integrated framework, called the Extended Multiple-Level-Organizational Level Model. That model is patterned closely after Stratified Systems Theory, but also combines elements of Streufert's Interactive Complexity Theory,

as well as other models presented in this report (e.g., behavioral complexity models, Transformational Leadership Theory). It also describes performance requirements at three organizational levels, requisite individual capabilities at each level, and the influential and moderating role of environmental factors. The model offered in this section is similar in interest to Hunt's in that it describes leader performance requirements at multiple levels and includes similar individual capabilities. However, it differs in several details from Hunt's model and extends it by describing the relationships among external and internal executive functions, as well as the interdependency among multiple leader qualities. Further, it specifies the reciprocal influences of leader functions within and between organizational levels. These model parameters provide a more process-oriented description of executive leadership compared to Hunt's primarily categorical one.

Figure 10-1 displays the leader performance requirements model. Figure 10-2 indicates only the executive-level requirements but adds the influence of environmental characteristics on executive performance as well as the notion that executive leadership is a direct determinant of organizational effectiveness and adaptation. Similar moderating influences and leadership consequences are likely to be applicable at lower organizational levels. However, for the sake of parsimony and because the central focus of this report is on executive leadership, these particular relationships are discussed only in terms of top organizational levels.

The leader performance requirements model is synthesized from the four conceptual perspectives presented in this report, as well as from the empirical findings reviewed in previous chapters. Specifically, six general premises that have received substantial empirical support from analyses of executive performance requirements provide the bases for these models. These are:

- Leader performance requirements can be described in terms of three distinct levels in organizational space

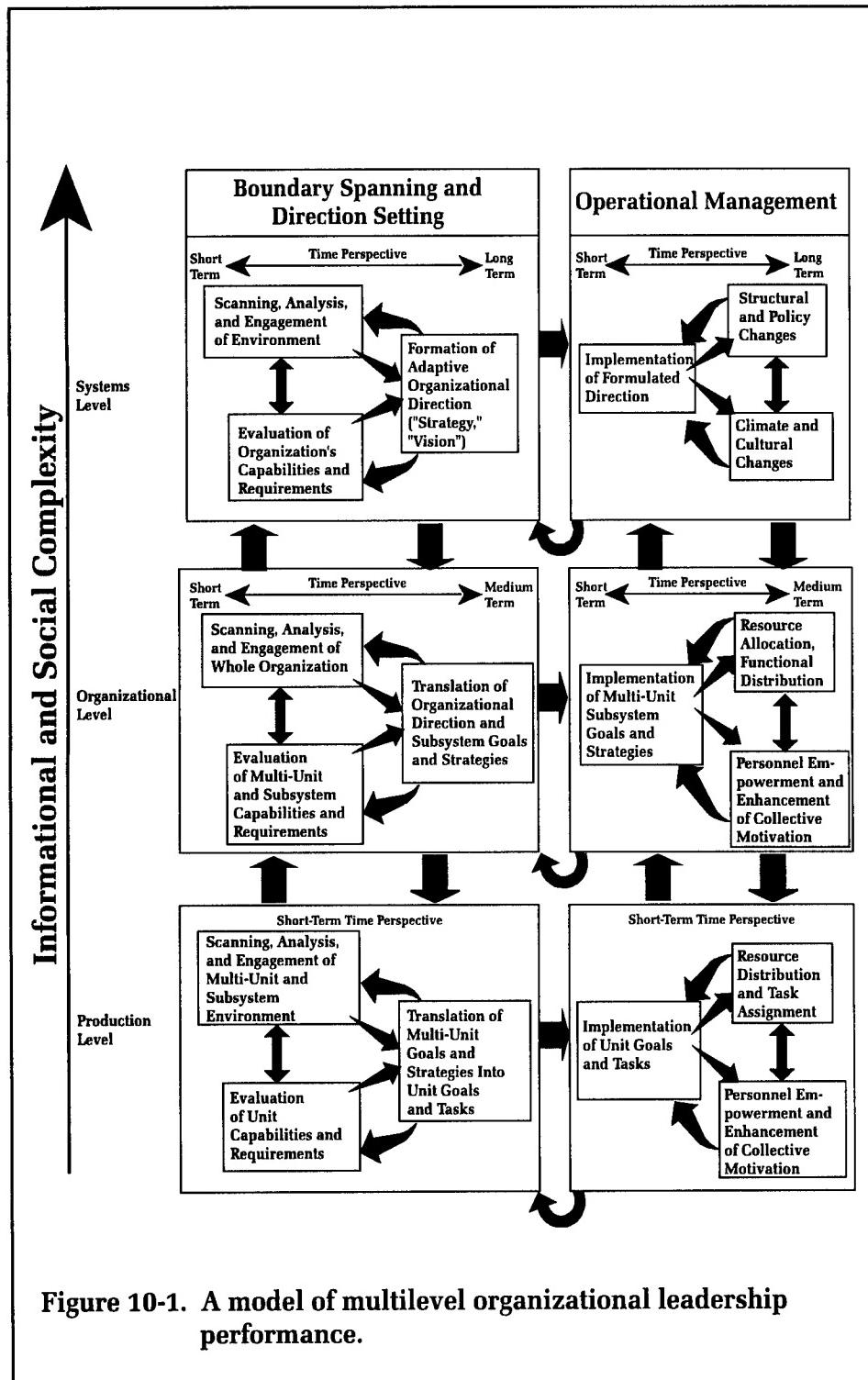


Figure 10-1. A model of multilevel organizational leadership performance.

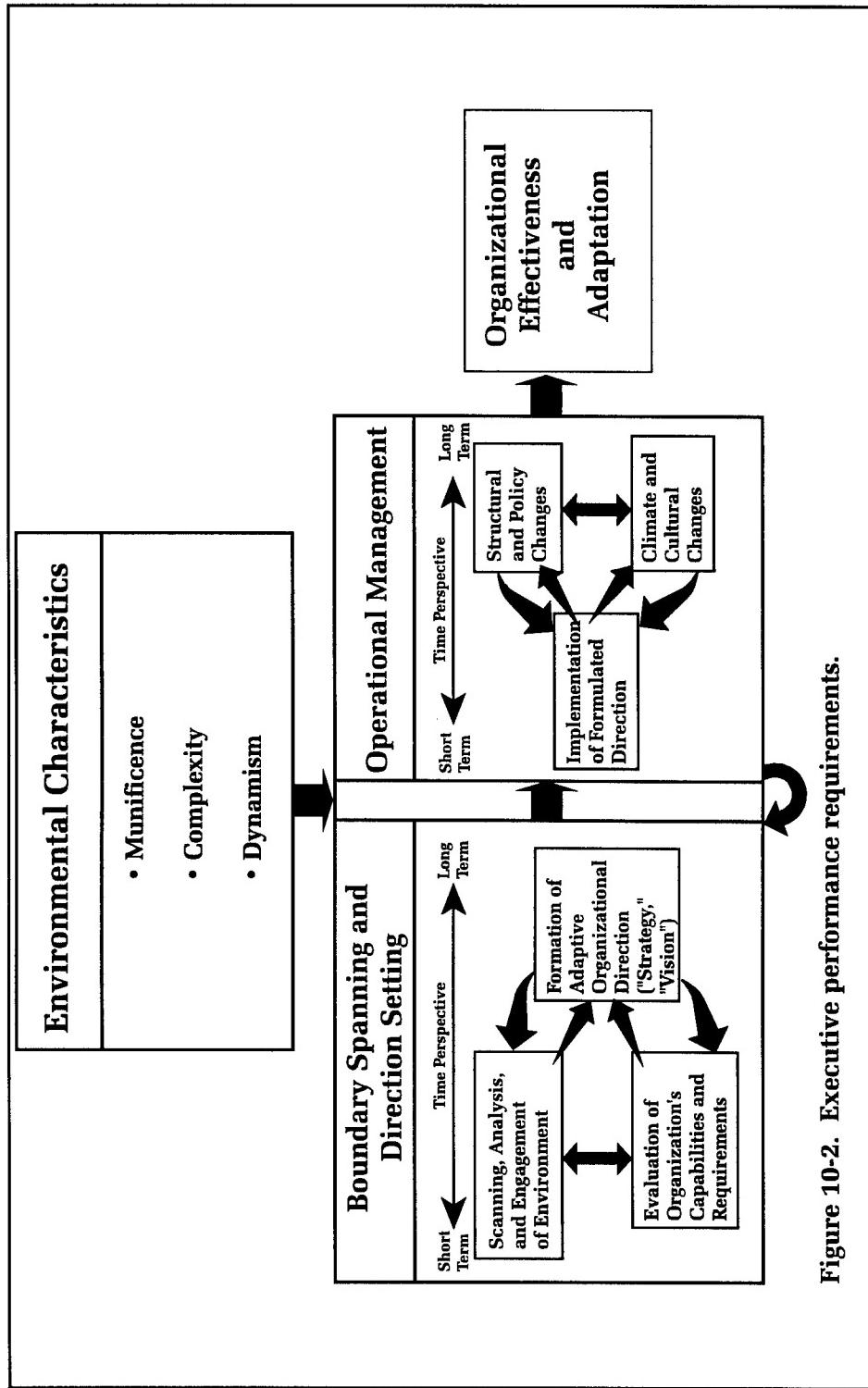


Figure 10-2. Executive performance requirements.

- All organizational leaders engage in direction setting (e.g., goal setting, planning, strategy making, envisioning) for their constituent units. Such direction setting incorporates an increasingly longer time frame at higher organizational levels.
- All organizational leaders engage in boundary-spanning activities, linking their constituent units with their environments. At lower organizational levels, this environment is the broader organization. At upper levels, boundary spanning and environmental analysis occurs increasingly within the organization's external environment.
- All organizational leaders are responsible for operational maintenance and coordination within the organization. At upper levels, operational influence becomes increasingly indirect.
- The effective accomplishment of executive performance functions facilitates organizational performance and success
- Characteristics of the operating environment influence the nature and quality of executive performance requirements

The first premise is indicated by the articulation of three levels of organizational leadership in Figure 10-1: production level, organizational level, and the systems level. While some models (e.g., Stratified Systems Theory) articulate more gradations, empirical evidence supports three general strata. Premises 2-4 are indicated by the delineation of leader functions at each of the three levels. Thus, at each level leaders engage in boundary spanning and analysis of the organization (or units therein) and its environment. They also engage in operational management. Boundary spanning and organizational analysis contribute to a formulated direction that is the basis of operational activities.

The last two premises are indicated explicitly in Figure 10-2. The executive performance requirements of boundary spanning,

direction setting, and operational management are linked directly to organizational effectiveness and adaptation to the environment. Characteristics of the environment, however determine the scope and extent of requisite boundary spanning as well as nature of direct setting and operational maintenance within the organization. Several strategic decisionmaking models also suggest that the environment will influence the extent to which executive performance requirements determine organizational performance (Bourgeois, 1984, 1985; Hitt & Tyler, 1991; Pfeffer & Salancik, 1978).

As noted, this model illustrates the interdependencies and reciprocal influences among leadership functions within and across organizational levels. This point emerges more from the four conceptual perspectives than from any empirical findings, although some evidence exists for these connections. The strategic decisionmaking models and the conceptual capacity approaches emphasize how environmental analysis is linked to organizational analysis as well as to formulated strategy. The inspirational leadership and strategic decisionmaking models link subordinate influences with direction setting and boundary spanning. The behavioral complexity models, particularly Mintzberg's (1973, 1975), argue that all of the leader roles encompassed by the model in Figure 10-1 form a gestalt that defines leader effectiveness. Such a gestalt or integrated whole would reflect the interdependency and reciprocity noted in this model.

In the next sections, the leader performance requirements model is described in more detail. Then, the requisite executive characteristics suggested by this model are delineated. The final sections of this chapter present several recommendations for future research on military executive leadership.

Organizational Stratification of Leadership Requirements

Day and Lord (1988) argued that a theory of executive leadership should define the qualitative differences that exist in leadership requirements across organizational levels. Accordingly, the leader performance requirements model in

Figure 10-1 specifies two qualitative shifts in requirements to produce three distinct levels of organizational leadership. This specification is similar to the one offered by Hunt (1991) and Katz and Kahn (1978). It also reflects the three superordinate domains of Stratified Systems Theory. However, the finer distinctions offered by this theory (i.e., seven strata) or by Mumford, Zaccaro et al. (1993) (i.e., four levels) are not included because the available evidence cited in earlier chapters supports no more than three levels of organizational requirements. It should be noted that most studies of such requirements establish *a priori* only three levels of leadership, typically comparing high-, middle-, and lower level leaders (e.g., Baehr, 1992; Hemphill, 1959, 1960; Kraut et al., 1989; Mahoney et al., 1965; Tornow & Pinto, 1976). There has not been a fine-grained empirical analysis of whether there are more than three meaningful qualitative shifts in organizational leadership or if there is any value in defining more than three conceptual levels. Thus, until such evidence is accrued, the assumption of three organizational levels is a pragmatic one.

The lowest level, *the production level*, involves direct leadership of single organizational units in which leaders define and translate short-term unit tasks and goals within the context of objectives established at higher levels. Problems confronting the leader are fairly concrete and reflect a short time frame (Jacobs & Jaques, 1987). They typically concern the resolution of immediate conflicts, crises, and emergencies that can impede production (Baehr, 1992; Paolillo, 1981). Several studies have demonstrated that leadership at this level involves more direct, face-to-face supervision of subordinates, including the training, motivation, and structuring of their work (Hemphill, 1959; Kraut et al., 1989; Mahoney et al., 1965; Pavett & Lau, 1983, Tornow & Pinto, 1976).

At the next level, *the organizational level*, leadership becomes increasingly more indirect, where leaders are managing multiple units or subsystems of the organization, each with its own supervisor (Jacobs & Jaques, 1987). As Hemphill (1959) notes, "supervision of work usually does not appear as a characteristic of upper-management work" (p. 57). Problems at

this level are more complex with multiple components, but still fairly well-defined. The time horizon for these problems is longer than for lower level managers. One of the central roles of middle managers is to translate the even longer term perspectives, strategies, and objectives established at top organizational levels into concrete, short-term objectives for first-line managers. They also need to allocate organizational resources among functional units in line with organizational objectives. Along this line, several studies have demonstrated that the major task for managers at this level is the coordination of multiple organizational units. For example, Tornow and Pinto (1976) reported that middle management jobs were characterized more than other positions by the "coordination of other organizational units and personnel." They defined this factor as typical of a position incumbent who

"coordinates the efforts of others over whom he/she exercises no direct control, handles conflicts or disagreements when necessary, and works in an environment where he/she must cut across existing organizational boundaries" (p. 414).

They found that this position factor was substantially less characteristic of lower or upper level leadership positions than of middle managers. Baehr (1992) reported a similar difference between middle-level versus upper and lower level leaders among some industries (e.g., Armed Services, manufacturing, mining) but not others (e.g. aerospace, law, sales, banks, computer, and telephone companies). Also, Kraut et al. (1989) found that the responsibilities for planning and resource allocation and for coordinating interdependent groups exhibited a major shift upward from low- to middle-level managers, but not from middle- to upper level. However, the importance assigned to "managing the performance of various work groups and working with subordinate managers on this performance" (p. 288) was highest for middle managers. Studies by Alexander (1979) and Pavett and Lau (1983) also indicated that middle management job functions include negotiation and some boundary spanning with the organization's external environment, although, not as much as at higher levels. Taken

together, these empirical studies support the argument that management at this level incorporates multi-unit and organization-wide coordination and control.

At the *systems level*, incorporating executive-level leadership, the leader is managing the organization as a whole within the context of a typically complex environment. Thus, this level of management is characterized more than others by external boundary-spanning activities (managers at lower levels are spanning the boundaries of their units or subsystems within the internal organizational environment). Executive leaders are required to scan and analyze the organization's environment to determine the nature of changes in that environment, the requirements needed for the organization to adapt to changes, and the resources available to the organization to meet these requirements. Katz and Kahn (1978) suggested that environmental scanning by senior leaders also includes a sensitivity to opportunities in the environment for organizational growth and development. Zaccaro, Gilbert et al. (1991) called this a search for environmental affordances and prescribed it as a key leadership skill. These scanning activities are combined with an analysis of organizational capabilities and requirements to determine (a) the needs of the organization with respect to environment resources and change, and (b) the kinds of opportunities in the environment to which the organization can be most responsive. Thus, environmental scanning both influences and is influenced by organizational evaluation and analysis. Finally, part of executive boundary spanning includes attempts by top leaders to influence and change the environmental conditions within which the organization must operate. *Effective executives are not passive recipients of environmental contingencies; instead, they seek to engage the environment and shape these contingencies.*

The time frame of systems leadership planning and action includes a long-term perspective, although the extent of this time horizon is debated by several executive leadership theorists. While Jacobs and Jaques (1987) argued that top executives operate within a 20- to 50-year time frame, Mintzberg (1994) suggested that long-term planning and reflection is

dysfunctional. Streufert and Swezey (1986) also argued against such long time horizons, particularly under turbulent conditions. They stated that (pp. 77-78):

Where planning occurs in a relatively stable environment without the necessity for sequential decision making in rapid steps, a strong correlation between executive job level and time span of planning may emerge. However, when sequential actions and plans call for sequential decisions in rapid succession, or when long-range plans would be inappropriate because of multiple uncertainty and rapid changes in task environments, a correlation would not be obtained. If the high-level manager, as described by Jaques, would plan years into the future under conditions of rapid change and considerable uncertainty, he or she would be overplanning (see Peters and Waterman, 1982).

Empirical studies suggest that executive planning horizons probably stretch 5 to 10 years into future. For example, Lucas and Markessini (1993) reported task time spans of 5 to 9 years for four-star Army general officers, but less than 5 years for other general officers. However, they found that planning horizons ranges from 5 to 7 years across general officers. Markessini et al. (1994) found task and planning time frames of approximately 5 and 8.5 years, respectively, in civilian military executives. Similar findings in military samples were reported by Jacobs and Jaques (1990) and Rigby and Harris (1987). Kotter (1982a, 1982b) found that the typical planning agenda for his managers included a 5- to 20-year horizon. Judge and Spitzfaden (1995) reported time spans of 5 to 8.5 years in eight businesses. However, they also found that the *diversity* of time spans in a company's strategic portfolio was more important than the *length* of executive time horizon. That is, executive leaders have multiple projects, some with immediate implications, others with very distant time frames. Note, this combination of projects is not the same as long-term projects decomposed into short-term objectives. Instead, the executive leader typically has several ongoing and often indirectly related projects that reflect a range of time horizons. Thus, the model in Figure 10-1 indicates that

time perspectives for top executives will vary from short-term to long-term.

Long time span horizons and diversity among strategic plans means that organizational problems at the systems level become increasingly ill-defined. Ill-defined problems are those for which the starting parameters, the permissible solutions, and the solution goals are ambiguous and unspecified (Holyoak, 1984). Accordingly, executive leaders confronting such problems need to construct their parameters, search for acceptable solution paths, and specify a goal state that may not generate universal consensus among organizational stakeholders regarding its appropriateness. Further, many of these problems will have elements that are substantially unfamiliar to even the most knowledgeable executive, and they will often require the generation of novel frames of reference and solutions (Mumford, Zaccaro et al., 1993). These problem characteristics contribute to the complexity of leadership at higher organizational levels.

Several empirical studies document the qualitative shift in leader performance requirements from middle to executive organizational levels. For example, Tornow and Pinto (1976) found that long-range thinking and planning was perhaps the most significant aspect of upper level managerial positions; moreover, these functions were rated as one of the *least* important aspects of middle- and lower level positions. Similar conclusions were offered by Baehr (1992), Hemphill (1959), and Mahoney et al. (1965). Goodman (1967) reported a moderate correlation ($r = .47$) between one measure of work time horizon and organizational level (level was defined in terms of Stratified Systems Theory; other measures of work time span, though, exhibited lower correlations). The external boundary-spanning aspects of executive (versus lower level) work has been demonstrated by Kraut et al. (1989) who found that activities related to monitoring the business environment display a sharp increase in emphasis from the middle- to executive-level leadership. Alexander (1979) reported a significant difference between upper and middle managers in the degree to which Mintzberg's liaison role was required in their jobs (although these managers did not differ on requirements for spokesperson

roles). Hambrick (1981b) found that environmental scanning activities were significantly correlated with hierarchical level in colleges and insurance firms (but not in hospitals). Taken together, these data indicate substantially greater emphasis on long-term planning and boundary-spanning activities at the executive level than at other organizational levels.

Informational and Social Complexity

A central dynamic of leader performance requirements is that the operating environment for organizational leaders becomes increasingly complex at higher levels. This complexity is grounded in greater task or information-processing demands as well as high social demands. Executive information processing is considered complex in terms of the information content that must be assimilated, the problems that must be confronted, and the cognitive structures required for a fully integrated representation of diverse organization-related stimuli (Campbell, 1988; Schroder et al., 1967). The different internal and external stakeholders to whom the executive is beholden, as well as the range of dynamic environmental forces and influences (e.g., economic, political, legal, technological; Hall, 1991; Katz & Kahn, 1978) acting on the organization, virtually guarantee that top organizational executives will have to generate, attend to, and choose from multiple solution paths. Further, the diversity within and between constituencies as well as the fluid character of most organizational environments create multiple outcome possibilities, conflicting or interconnected solution paths, and ambiguous associations between defined solution paths and organizational outcomes. These characteristics of executive work result in higher information-processing demands and hence greater complexity (Campbell, 1988).

The greater social complexity results from the responsibility that executives have to coordinate and supervise the activities of different departments and subsystems within the organization. Each subsystem presents the leader with different and often conflicting demands, goals, and agendas. In developing an overall organizational direction, the executive needs to consider and reconcile the requirements engendered by each of these

organizational subsystems. The socially complex dimension of this process is that executives then need to persuade various organizational constituents and stakeholders to accept his or her reconciliation of their demands. The implementation of organizational visions may require that executives fundamentally change the social dynamics of their organization. This requires careful negotiation through a social mine field as executive leaders try to balance the myriad of social demands. At lower organizational levels, leaders are responsible for fewer organizational units and much of the social integration work likely has been completed by their superiors. Thus, their level of social complexity is less.

Leader Direction-Setting and Operational Management

The model of multilevel organizational leadership requirements shown in Figure 10-1 depicts two fundamental requirements for leaders at all organizational levels, including the executive level. The first is to provide a direction for collective action. The second is to manage the day-to-day operations of the organization (or unit(s) within the organization). These requirements are consistent with all of the theoretical perspectives presented in this report. For example, in their Stratified Systems Theory, Jacobs and Jaques (1990, p. 282) offered a definition of leadership that applied across organizational levels. They suggested that “Leadership is a process of giving purpose [meaningful direction] to collective effort, and causing willing effort to be expended to achieve purpose.”

Thus, leaders define and articulate a direction in line with external or environmental contingencies for their subordinate unit and create the internal conditions to accomplish the tasks specified by this direction. Unlike other conceptual models, though, Stratified Systems Theory argues that leaders at the very top of the organization are less concerned with internal operations than those at lower executive levels.

The other conceptual perspectives presented here place equal responsibility for external outreach and internal operations on top executive leaders. For example, the roles specified by behavioral complexity approaches (such as the Competing Values model) include vision setter and innovator as well as coordinator, director, and producer (Hart & Quinn, 1993, Hooijberg & Quinn, 1992; Quinn, 1984, 1988). Strategic decisionmaking processes are essentially grounded in the formation *and* implementation of long-term organizational strategy. Finally, the inspirational leadership theories and models emphasize the galvanization of organizational effort and the empowerment of subordinates in line with an articulated vision. This division of executive direction setting and operational management mirrors the classification of leadership activities offered by Katz and Kahn (1978). They argue that organizational executives are required to adopt both an external systemic perspective and an internal systemic perspective, with respect to the leadership of their organization. Gardner and Schermerhorn (1992) offer a similar distinction between strategic directional leadership and strategic operational leadership as the requirements of senior organizational leaders. These contributions argue for a dual focus in executive leadership, one oriented inward on organizational coordination, the other oriented outward toward environmental exchange. Successful leadership at the top of organizations cannot be limited to one or the other orientation; instead, it requires both.

Envisioning. At the top of the organization, leader direction-making generally takes the form of a vision. An organizational vision presents a desired image of the organization at some future point in time. As suggested by several theories of visionary leadership, leader values become a defining element of such visions (Bennis & Nanus, 1985; Nanus, 1992; Senge, 1990). This vision becomes operationalized in terms of an organizational strategy that becomes propagated to lower organizational levels. At middle organizational levels, leaders translate organizational (or system-level) visions into subsystem goals and strategies. At the lowest levels of organizational leadership, managers convert strategies and objectives developed by their superiors into relatively short-term

goals and tasks for their units (Kelly, 1993; Kotter, 1990). It should be noted that the translation of organization vision and strategies into day-to-day and monthly activities is not the province of executive leaders, but instead the responsibilities of managers at lower organizational levels. Executives have the responsibility for formulating a vision with a corresponding strategic plan, articulating these to the organization, and persuading organizational constituents to adopt and implement the plan. This distribution of functions is consistent with those suggested by Stratified Systems Theory and by Transformational Leadership Theory.

The responsibility for translating executive vision into operational tasks means that middle organizational managers are constantly mediating between their constituent units and the broader systems above them. This denotes their boundary-spanning functions, as representatives for their units within the larger system environment. Similarly, lower level managers are responsible for translating subsystem and middle-level organizational dynamics into a meaningful framework for their own units. These boundary-spanning processes across multiple organizational levels reflect the frame of reference construction defined by Stratified Systems Theory as the essential means by which leaders add value to their constituent unit. That is, at each organizational level, leadership involves translating larger systems dynamics into a meaningful pattern that is useful in defining and guiding collective action at that level.

Once a vision and strategy is formulated, it becomes the guide for subsequent analyses of the organization and its environment. After the executive leaders develop a vision or strategy, further evaluations of organizational capabilities occur in the light of the formulated direction to determine the increasing (or decreasing) alignment of the organization and its environment. When environmental or organizational conditions change significantly such that they become seriously inconsistent with the formulated direction, then senior leaders must adapt their vision to changed conditions or fail.

As these points suggest, the leader performance requirements model includes feedback loops or reciprocal influences, where leader visions shape the subsequent information acquisition by senior leaders of the organization and its environment; this information then serves in an ongoing evaluation of organizational progress regarding attainment of formulated objectives. Similar processes operate at lower organizational levels, where a manager's evaluation of unit progress and unit capabilities as a function of direction-setting becomes a basis for readjustments to unit goals, tasks, and objectives. However, this evaluation and adjustment occurs within the structure created by leaders at higher organizational levels. Alternatively, goal adjustments at lower levels contribute to the reevaluation of organizational capabilities and requirements at upper levels.

Operational management. The operational management activities specified by the leader performance requirements model represent the internal perspective of senior leaders that was prescribed by Katz and Kahn (1978). The second major requirement of executive leadership is to implement their formulated direction by coordinating the necessary organizational elements. The process of implementation is integral with the operationalization of the leader's vision. When the leader translates her or his vision into a strategy, objectives, goals, plans, and tasks, implementation has already begun. The next critical step becomes the coordination of organizational elements. Katz and Kahn noted (p. 541):

Every organization, itself a system, consists in turn of subsystems. These subsystems have different needs, and the people in them manifest characteristically different kinds of strivings. It is an unavoidable function of leadership to integrate and harmonize these subsystem differences; indeed, coordination and control of subsystems are essential functions of the managerial subsystem To perform these functions requires awareness and perceptiveness of the changing requirements of the subsystems and their populations.

The harmony guiding this coordination is the vision provided by the senior leader.

The conceptual perspectives of executive leadership suggest that the process of implementation takes two forms. The first involves planned change in the structure and policies of the organization. This change process is the unique property of senior organizational leaders. While junior leaders may develop an organizational vision and they may engage in charismatic, transformational, or inspirational leadership, the reality of organizational role distribution is that the legitimate rights and responsibility to change fundamental organizational structures and set organization-wide responsibilities reside among the top echelons of the top organization (Jacobs and Jaques, 1987; Katz & Kahn, 1978). Senior organizational leaders may share those rights and responsibilities to lower level leaders, but such functions are theirs to distribute.

This process of organizational change is recognized prominently in both of the behavioral complexity and strategic choice models. Mintzberg's leader role model specified resource allocation, negotiation, and leadership (defined as hiring, training, and motivating of personnel) as key top managerial functions, while Quinn (1988) described coordinator and director as critical leader roles in his Competing Values Framework. Likewise, as shown in Figure 6-1, Wortman (1982) included structural policy change as one of his key strategic management functions.

The second process of implementing formulated organizational directions, suggested by the visionary leadership models, involves changing the climate and culture of the organization and altering the basis for the connection between leader and followers. This change involves (a) greater emotional attachment based on the contents of the leader's vision, and (b) an empowerment of subordinates through the enhancement of their work-related self-esteem. This empowerment results in their participation in the change process.

Changes in either structure and policy or climate and culture influence each other. For example, when organizational structures are decentralized, the result can be greater assignment of responsibilities to, and therefore stronger empowerment of, subordinates. Likewise, changing the psychological climate of an

organization may result in social pressures for alternate structural arrangements that are congruent with the new climate. Thus, each of the change processes are seen as reciprocally determined.

Changes in organizational structures, policies, climate, and culture can promote the executive leader to reevaluate his or her implementation strategies. Further, as implementation proceeds, changes in the organization become information for subsequent scanning of the environment and consideration of how the original formulated direction is working. Thus, as shown in Figure 10-1, feedback or reciprocal influences exist between the executive's direction setting and implication activities.

Summary. At several points in the preceding discussion, the interconnectiveness of the integrated model of leader performance requirements has been emphasized. To summarize these interconnections, the formation of an organizational direction follows from the executive's scanning, analysis, and evaluation of both environmental dynamics and organizational capabilities and requirements. However, an executive's vision or long-term strategy then influences subsequent perceptions of the organization and its environment. Further, environmental scanning influences, and is influenced by, organizational scanning and analysis. Similar dynamics occur within the domain of operational management where structural and climatic changes are related to one another, and both influence subsequent strategic implementation decisions. The course of vision implementation can also result in a repositioning of the organization within its environment and a revision of subsequent strategic plans. Finally, actions at each organizational level are reciprocally related to actions taken at other levels. These connections are important for understanding executive leadership because they illustrate the dynamic and adaptive quality of top leader behavior.

Executive Performance Requirements

Figure 10-2 displays the same systems-level performance requirements shown in Figure 10-1, but with two components

added to make other critical points about executive leadership. First, the consequence of accomplishing executive performance requirements is organizational effectiveness and adaptation. While some researchers have disputed this connection (e.g., Lieberson & O'Connor, 1972; Meindl et al., 1985; Pfeffer, 1977, 1981; Salancik & Pfeffer, 1977), others provide significant evidence affirming the influence of executive action on organizational success (Barrick et al., 1991; Day & Lord, 1988; Romanelli & Tushman, 1988; Smith, Carson, & Alexander, 1984; Weiner & Mahoney, 1981). Day and Lord specified several influence tactics that are potential ways executives influence organizational performance. These tactics, shown in Table 10-2, reflect several of the activities specified in the integrated model as leader performance requirements. For example, three superordinate categories are indicated: *influencing external environments*, *adapting to external environments*, and *internal influence and adaptation*. The first two categories include activities related to environmental boundary spanning and engagement, while the latter category reflects actions related to internal organizational management. Executive tactics involve direct interventions, such as policy and structural changes, as well as indirect interventions that center on influencing organizational and environmental climate factors. The value of Day and Lord's classification is that it operationalizes several means by which executives influence organizations and, accordingly, provides the basis for empirical tests of these connections.

The second component is the moderating role of environmental contingencies on executive performance requirements. If executive leadership is focused on creating a co-alignment or adaptive fit between the organization and its environment (Bourgeois, 1985; Katz & Kahn, 1978, Lawrence & Lorsch, 1967; Thompson, 1967), then characteristics of the external environment should determine the nature of requisite executive performance requirements as well as the strategic decisions made by top organizational leaders (Bluedorn, Johnson, Cartwright, & Barringer, 1994; Hambrick, 1989; Hambrick & Mason, 1984; Rajagopalan, Rasheed, & Datta, 1993). Three environmental dimensions are indicated: *munificence*,

Table 10-2. Potential Means by Which Top-Level Leaders Can Affect Organizational Performance

Target	Objective	Tactics	
		Direct	Indirect
A. INFLUENCING EXTERNAL ENVIRONMENTS			
1. Government policy (e.g., regulation, taxation, trade)	Change policy to reduce uncertainty or increase resources	Direct political influence	Political influence via other groups (e.g., unions, suppliers)
2. Acquiring resources and maintaining boundaries	Increase stability Reduce competition	Horizontal or vertical integration Promote entry barriers and noncompetitive pricing	Create favorable public image or opinion Enhance image of organization or product
B. ADAPTING TO EXTERNAL ENVIRONMENTS			
1. Choice of markets or environments	Increased stability and munificence	Strategic planning	Influence top management's schemas; select those with similar schemas
2. Management and production system	Fit with environment and strategy	Organizational design	Guide top management's labeling of environments
C. INTERNAL INFLUENCE AND ADAPTATION			
1. Subsystem organization and management	Rationalization and integration Coordination and appraisal	Definition and functional specification of roles Design and implementation of management information systems	Shape top management's schemas of organizing; select those with similar schemas
2. Productivity	Increase organizational efficiency	Reduce capital or personnel costs	Use information as sign and symbol
3. Quality	Increase product quality	Increase quality control	Strengthen productivity norms Strengthen quality norms
4. Organizational climate and culture	Increase motivation and commitment of employees	Determine or influence organizational politics	Enhance participative decision-making norms; symbolism of CEO

Note: For each objective there are additional tactics; however, space limitations prohibit their inclusion in this table.

Note: From "Executive leadership and organizational performance: Suggestions for a new theory and methodology," by D. V. Day & R. G. Lord, in *Journal of Management*, 14(3), p. 461, 1988. Copyright 1988 Southern Management Association. Adapted with permission of Southern Management Association.

complexity, and *dynamism* (Hall, 1991). Munificence refers to the resource richness or scarcity of the environment. Executive decisions carry less risk in a resource-rich or munificent environment because lost resources from bad decisions often can be easily replenished (provided the organization still retains sufficient assets). This consequence results in different kinds of strategic decisions than if the environment were resource poor. Thus, if organizations have the minimum resources to capitalize on environmental opportunities, they are more likely to thrive in munificent contexts (Tuggle & Gerwin, 1980). Complexity refers to environmental diversity in terms of resource suppliers, clients/customers, markets, and geographical locations.

Environmental complexity presents more alternatives, options, and solution paths to strategic decisionmakers, increasing the information processing demands of top leaders. Dynamism refers to the rapidity and unpredictability of change in the environment and the degree of interconnections among environmental elements. High environmental dynamism requires more analysis and strategic planning by top executives than organizational environments that are relatively stable and predictable (Ansoff, 1979; Glick, Miller, & Huber, 1993; Miller & Cardinal, 1994; Miller & Frieson, 1984).

Several empirical studies have demonstrated the role of these three factors in modifying requisite executive actions. Fredrickson and his colleagues have found that comprehensiveness in environmental analysis and strategic decisionmaking was productive in a stable environment, but counterproductive in a dynamic one (Frederickson, 1984; Frederickson & Iaquinto, 1989; Frederickson & Mitchell, 1984). Similarly, Hambrick (1989) proposed that the degree of heterogeneity in members of the top management team was positively associated with organizational performance in stable environments, but negatively associated with performance under conditions of dynamism or turbulence. Keck and Tushman (1993) provided some support for this connection, demonstrating that organizations with flexible and heterogeneous top management teams adapted better to environmental disruptions than teams with less diversity. Miller and Cardinal (1994) found in their meta-analysis of planning and performance studies that

the correlation between these two variables was stronger under conditions of environmental turbulence. Finally, Gibb (1994) reported that environmental complexity increased the frequency of Mintzberg's informational, decisional, and interpersonal roles displayed among organizational managers. He also reported that environmental dynamism increased the incidence of decisional roles. Taken together, these studies support the connection proposed between environmental characteristics and executive performance requirements.

The leader performance requirements model presents an elaborate conceptualization of executive work. Its utility lies not only in specifying the elements of executive leadership, but also in providing the basis for delineating the executive characteristics required to successfully complete such work. These characteristics are presented in the next section.

REQUISITE EXECUTIVE CHARACTERISTICS

The individual qualities necessary for executive success are grounded in the high information-processing demands and social complexity that define the operating domain of top organizational leaders. These characteristics, as distilled from the conceptual perspectives and empirical research described in this paper, are displayed in Table 10-3. Five sets of characteristics are indicated: *cognitive capacities, social capacities, personality, motivation, and knowledge and expertise*.

Cognitive Capacities

The following cognitive capacities are associated with significant executive leadership: *intelligence, analytical reasoning skills, flexible integrative complexity, metacognitive skills, verbal/writing skills* (or crystallized cognitive skills), and *creativity* (see Table 10-2). Given the high level of information-processing demands and task complexity that confront organizational executives, all of the conceptual frameworks described in this report propose some of these cognitive skills and capacities as necessary prerequisites for effective senior leadership. Indeed, Katz and Kahn (1978) noted

Table 10-3. Requisite Executive Characteristics**Cognitive Capacities and Skills**

Intelligence
Analytical reasoning skills
Flexible integrative complexity
Metacognitive skills
Verbal/writing skills
Creativity

Social Capacities and Skills

Social reasoning skills
Behavioral flexibility
Negotiation/persuasion skills
Conflict management skills

Personality

Openness
Curiosity
Self-discipline
Flexibility
Risk of propensity
Locus of control

Motivation

Need for achievement
Need for socialized power
Self-efficacy

Expertise and Knowledge

Functional expertise
Social expertise
Knowledge of environmental elements

that while technical, interpersonal, and conceptual skills were required for organizational leadership, “in the upper managerial levels the conceptual abilities of the manager considerably overshadow in importance technical skills and skills in human relations” (p. 541). Lewis and Jacobs (1992) concurred, arguing that

the fundamental individual difference variable that most often distinguishes successful strategic leaders from unsuccessful ones is the extent to which leaders’ conceptual capacity meets or exceeds the conceptual demands inherent in their work. Those promoted to strategic leadership typically already possess the requisite interpersonal and technical skills needed to be successful. These skills and the motivation to lead will usually already have been amply demonstrated at lower managerial levels.

Lewis and Jacobs (1992) derived their argument from Stratified Systems Theory. Behavioral complexity, strategic decisionmaking, and inspirational leadership models also argue for high cognitive capacity as an executive quality. For example, Hooijberg and Quinn (1992) maintained that the successful balancing of competing behavioral roles requires cognitive complexity. The innovator role specified by Quinn (1984; Hooijberg and Quinn, 1992) requires the leader to possess creativity or skills in divergent thinking. The logical analysis and interpretation of environmental data required by strategic decisionmaking models points to the need for strategic leaders to have high intelligence and strong reasoning skills. Finally, Tichy and Devanna (1986b) argued that successful senior leaders require creativity to develop innovative and effective visions. The visionary leadership models also indicate that the communication and implementation of vision calls for high-level verbal skills (Bass, 1985; House, 1977; Kanungo & Conger, 1992). Moreover, a central element of Bass’s Transformational Leadership Theory is the leader’s role in providing intellectual stimulation for their subordinates, a performance requirement that depends upon both high mental ability and communication skills. These conceptual contributions indicate a broad

consensus that cognitive capacities are important executive qualities.

Several empirical studies have associated cognitive skill to executive behavior and performance. For example, Baehr (1992) administered several mental ability tests to 1,358 managers at three organizational levels in four different industries. He found that managers generally scored high on these tests. He also found that mental abilities become more important as job requirements at higher organizational levels in all industries, except professional ones (i.e., aerospace, law). Rusmore (1984) reported similar findings in that upper level managers scored higher on tests of cognitive creativity than their lower level counterparts; moreover, Rusmore and Baker (1987) reported higher correlations between creativity and performance in organizational executives than in middle- or lower level managers. Simonton's study of U.S. presidents found that intellectual brilliance was the only personal quality that predicts historian ratings of presidential performance.

Recent studies on organizational leadership have proposed that metacognitive problem solving skills are important executive qualities (Geiwitz, 1993; Laskey, Leddo, & Bresnick, 1990; Markessini, 1991). Metacognitive capacities are defined in terms of the skill application of superordinate cognitive functions that control the application and operation of cognitive abilities and skills (Brown, 1978; Sternberg, 1985, 1988). Sternberg's (1985, 1988) triarchic theory of intelligence specifies three components of cognitive functioning in intelligent behavior, knowledge-acquisition components, performance components, and metacomponents. Metacomponents are defined as "higher-order executive processes used in planning, monitoring, and evaluating one's problem solving" (Sternberg, 1988, p. 132).

Problem solvers use cognitive abilities and skills such as inductive reasoning, deductive reasoning, divergent thinking, information-processing skills, and verbal reasoning to derive effective solutions. However, metacognitive skills regulate and monitor the application of these skills in three general ways (Brown, 1978; Davidson et al., 1994; Geiwitz, 1993). First, they

facilitate an understanding of the problem itself and its critical parameters. Second, they promote the search for and specification of effective solutions. Finally, these skills are used in monitoring solution implementation, generating feedback regarding such implementation, and adapting solutions to changing conditions. Davidson et al. (1994) noted that such skills are more critical for unstructured, insight, or creative problems. As noted by Mumford and Connelly (1991) and Mumford, Zaccaro et al. (1993), these are precisely the kinds of problems that are more common at upper levels of most organizations. The cognitive representation of such problems is difficult because problem solvers do not have familiar or established cognitive representations (or mental models) that help them frame problem parameters. Accordingly, Davidson et al. presented three metacognitive processes—selective encoding, selective combination, selective comparison—that facilitate the representation of unfamiliar problems. Taken together, these processes reflect novel uses of existing information to generate new understandings and hence previously unknown solution paths. In other word, skill in applying these skills should facilitate executive leader functioning.

To date, there is little if any empirical studies that have specifically distinguished between cognitive and metacognitive functioning and shown the latter to be significantly associated with effective organizational leadership. Nonetheless, the aforementioned conceptual contributions argue strongly for the specification of metacognitive skills as important executive qualities. Empirical research is necessary to confirm the proposed distinction between cognitive and metacognitive skills, as well as the additional contribution of the latter to executive leadership.

Social Capacities

The high levels of social complexity characterizing the operating environment of executive leaders argue for social capacities as critical executive competencies. Social capacities include two sets of skills, those related to interactional competencies and those related to social reasoning

competencies. Interactional competencies include *behavioral flexibility, negotiation skills, conflict management, and persuasion skills*. Because organizational environments are complex and dynamic, a solution that works in one problem scenario may be inappropriate or even counter-productive in another. Thus, executive leadership requires flexibility in behavior to respond effectively in significantly different ways across different organizational scenarios and in accordance with different, sometimes conflicting organizational goals (Bray, 1982; Howard & Bray, 1988; Zaccaro, Gilbert et al., 1991). In essence, behavioral flexibility involves the ability to respond *equally well* to very different situational demands. As suggested in chapter 4, this ability is necessary for the effective display of behavioral complexity by organizational executives.

The role of leaders as representatives of organizational systems containing multiple, sometimes conflicting constituencies illustrates the importance of negotiation skill, conflict management, and persuasion as key interactional competencies. The activities fostered by these skills have long been recognized as critical aspects of organizational leadership, often comprising about 25% of a manager's total work time (Thomas & Schmidt, 1976). Conflict management typically involves the application of one or multiple resolution strategies to interacting parties (Thomas, 1992). Negotiation skills are used to develop consensus among conflicting units. Both sets of skills reflect the instrumentality of behavioral flexibility as leaders need to be able to respond in different ways to multiple conflicts.

Visionary and charismatic leadership theories highlight the importance of persuasion skills as executive qualities. Charismatic individuals often attain leadership status by articulating a vision for an organization that is in opposition to the status quo. They gain legitimacy to the extent they can convince followers of the power and rightness of their vision (Bass, 1985; Conger & Kanungo, 1987, 1988; House, 1977; House & Shamir, 1993). Because of the nature of power distribution in most organizations, skills in the use of persuasion become more important in higher levels of organizational leadership (Jaques et al., 1986). Leaders at the uppermost organizational level are

typically less likely to have established rigidly hierarchical and authoritarian relationships with immediate subordinates; therefore, social influence primarily takes the form of rational persuasion. Top organizational leaders also interact frequently with external and regulatory constituencies, where persuasion may be the only available means of influence and control (Jaques et al., 1986). For these reasons, persuasion skills become an important determinant of executive success in this domain.

Zaccaro, Gilbert et al. (1991) argued that to be effective these interactional competencies and their behavioral manifestations must be applied in accordance with situational cues and requirements. This suggests that interactional competencies are necessary, but not sufficient for effective executive leadership; social reasoning skills are also necessary for such leadership. One basis for effective social reasoning is *social perceptiveness*, which refers to a capacity to be insightful regarding the needs, goals, demands, and problems of multiple organizational constituencies (Zaccaro, Gilbert et al., 1991). This insight extends to individual members, relations among members, relations among organizational units, and interactions between a leader's organization and other organizations. Prior research on social perceptiveness and leadership has focused primarily on recognizing the needs and problems of individual organizational personnel (e.g., Bass, 1990, pp. 117-120). This represents skill in *interpersonal* perceptiveness and interpretation. However, the social insightfulness of successful leaders, particularly top organizational leaders, also includes a realization of the needs and goals of teams and organizations as a whole, as well a sensitivity to opportunities in the larger environment that can advance organizational goals. This reflects skill in *system* perceptiveness and judgement.

Several empirical studies have affirmed the role of social capacities as important leadership qualities (e.g., Boyatzis, 1982; Gilbert & Zaccaro, 1995; Ritchie, 1994; Zaccaro, Foti et al., 1991), although few studies have specifically targeted executive-level leaders. Boyatzis (1982) used a critical incidence methodology (Flanagan, 1954) to compare effective and ineffective managers at different levels and to identify the particular traits and abilities

associated with leader success. He found that effective managers display abilities in developing coalitions and organizational networks, persuading and gaining the cooperation of others, conflict management and resolution, and managing and facilitating team processes. McCall and Lombardo (1983) reported from interviews with executives and middle-level managers that those who tended to fail (or "derail") were perceived in part as weak in interpersonal skill, particularly social sensitivity.

Some researchers have found that leaders score higher on measures of social accuracy and insight than nonleaders (Bell & Hall, 1954; Chowdhry & Newcomb, 1952; Fleishman & Salter, 1963; Stogdill, 1948), while others report no significant differences (Campbell, 1955; Hites & Campbell, 1950; Shartle, Stogdill, & Campbell, 1949). Bass (1990) argued that a leader's social insight was enhanced by such situational circumstances as the organizational relevance of the qualities being perceived (Chowdhry & Newcomb, 1952), the familiarity of organizational members to the leader, and the degree of actual (rather than assumed) similarity between the leader and other organizational members. All of these factors are likely to contribute to the quality and complexity of a leader's social knowledge structures, which in turn facilitate the utility of social reasoning skills in organizational domains (Cantor and Kihlstrom, 1987; Zaccaro, Gilbert et al., 1991). Issue relevance, familiarity, and similarity provide the leader with a wealth of information that can be applied to the diagnosis of organizational scenarios. That is, these factors promote the system perception skills of the leader.

Along these lines, Gilbert and Zaccaro (1995) examined social intelligence, social knowledge structures, and career achievement in Army officers ranging in rank from 2nd lieutenant to colonel. These officers were also asked to generate solutions to a variety of problem domains that were typical of upper organizational military leaders. They found that officers who scored high on measures of social intelligence had more principle-based and elaborated social knowledge structures than officers who displayed lower social intelligence. Higher ranking officers were also more attuned to environmental opportunities

(or affordances) that existed in the various problem scenarios. Gilbert and Zaccaro also reported that systems perception skills and behavioral flexibility, but not interpersonal perception skills, were significantly associated with officer rank and with indices of career success. Higher ranking military officers displayed more systems perception and behavioral flexibility skills than lower ranking officers, and these skills predicted career success.

These findings suggest support for the importance of social capacities for organizational leadership. However, most of the aforementioned studies did not examine executive-level leaders. Evidence for the importance of such capacities for executive success comes from a number of interview-based studies (e.g., Harris & Lucas, 1991; Kaplan, 1986; Kotter, 1982a, 1982b; Lucas & Markessini, 1993; Markessini, Lucas, Chandler, & Jacobs, 1994). A theme across these studies is that top executives consistently cite skills related to conflict management, network development, consensus building, and persuasion as critical for success in their jobs. Although these data are informative, they need to be supplemented with studies that associate measures of social capacities with indices of executive and organizational performance.

Personality and Motivational Qualities

The complexity of executive operating environments suggests that certain temperament and motivational qualities will be associated with executive performance. Because of high levels of uncertainty and ambiguity in such environments, executives who thrive are likely to be those whose dispositions include an orientation toward openness, flexibility, and adaptability. These qualities are also important because a significant proportion of executive work requires creativity and an ability to solve novel, ill-defined problems (Mumford & Connelly, 1991; Mumford, Zaccaro et al., 1993). Openness and flexibility foster a leader's willingness to work with new ideas and consider changes from the status quo (Barrick & Mount, 1991; Bray, Campbell, & Grant, 1974; Howard & Bray, 1988; Keller, 1986; McCrae & Costa, 1987).

The exploration of new and uncharted areas by executives significantly increases the possibility of subsequent failure. Personality characteristics such as risk propensity, ego-resiliency, and self-discipline, therefore, are important for successful leadership because they promote boldness and strong sense of self-assurance. Leaders low in ego-resiliency and risk taking (or alternatively, exhibiting a defensive rigidity and anxiety) perform poorly in creative problem solving situations because their dispositions interfere with the effective application of cognitive resources (Mumford, Baughman, Threlfall, Costanza, & Uhlman, 1993; Mumford, Costanza, Baughman, Threlfall, & Fleishman, 1994). They are also more threatened by instability and, therefore, less motivated in such situations. Leaders with high self-confidence and ego-resiliency thrive under the challenge of uncertainty and high-risk ventures.

Motivational characteristics contribute to effective executive leadership for several reasons. First, such leadership requires a significant amount of energy and personal commitment. Second, the tasks of top organizational leaders include the accomplishment of large-scale organizational change and the creation of new business units within the organization (Jacobs & Jaques, 1987). Such efforts are facilitated by high-achievement needs and self-efficacy. Achievement needs foster the desire to create something new and innovative rather than merely responding to assigned tasks and routine leadership problems. High self-efficacy, defined by Sashkin (1992) as "one's belief in oneself as an effective 'agent' in (and on) one's environment" (p. 143), represents a motivational property of the successful executive because it leads to a high level of confidence possessed by the executive when confronting difficult and challenging circumstances. Thus, the executive is more driven in such situations and persists even after initial failure.

A third reason for executive motivational qualities is that the creation of an innovative organizational product requires significant social influence by the leaders, as they sometimes seek to move an entire organization into a different strategic direction. Thus, executive leaders also need to possess a strong need or desire for dominance and power. Several researchers

have noted that the focus of this power is not on acquisition of personal gain, but instead on the advancement of organizational priorities. Bass (1990, p. 129) noted, for example,

... *intrepreneurs* (individuals who behave innovatively in large complex organizations) are task-oriented personnel who use power whenever they can to ensure that their ideas, inventions, and innovations are accepted in their organization (Pinchot, 1985). Such intrepreneurs regard power as being instrumental for the accomplishment of tasks and as something they share with others, rather than as a basis for personal aggrandizement.

The various conceptual frameworks presented in this report have proposed a number of these temperament and motivation qualities as requisite executive characteristics. For example, Dutton and Jackson (1987) and Cowan et al. (1992) argued that high self-efficacy is a necessary quality for effective strategic management. Sashkin (1992) agreed, proposing self-efficacy as a prerequisite for visionary leadership. Also, models from both strategic management and visionary approaches cited risk propensity, flexibility, and locus of control as individual characteristics associated with effective executive leadership. However, some differences are apparent on need for achievement. While House et al. (1991) reported that charismatic presidents were low on achievement motives, Miller and Toulouse (1986) found that high-achievement needs in executives was associated with more environmental analysis and proactive strategic decisionmaking. Few strategic decisionmaking models emphasize need for socialized power as an executive quality; however, this characteristic is a prominent one for charismatic leaders (House and Howell, 1992).

Several empirical studies have provided support for these personality and motivational characteristics as important executive qualities. Miller et al. (1982) reported that executive locus of control was related to more innovative strategic management, including the introduction of new products and the initiation of more research and development projects. Miller and Toulouse (1986) replicated these findings and found a significant correlation between executive locus of control and

company sales growth over a 5-year period. They also reported a significant link between flexibility and company growth.

Further, executive achievement needs were associated with more environmental scanning and proactive strategic decisionmaking, although not to company performance. Howard and Bray (1988) found that managerial achievement and mastery needs (i.e., the motivation for challenging and difficult work projects) increased over the course of a manager's 20-year career span. Several other studies have linked similar characteristics to the display of visionary, transformational, or charismatic leadership. House et al. (1988) found higher power needs in six charismatic presidents (i.e., Jefferson, Jackson, Lincoln, Theodore and Franklin Roosevelt, and Kennedy) than in six presidents judged low in charisma (i.e., Tyler, Pierce, Buchanan, Arthur, Harding, and Coolidge). Ross and Offermann (1991) reported that self-confidence, among other variables, was associated with transformational leadership in mid-career Air Force commissioned officers. House and Avolio (1993) reported that upper level organizational managers with an internal locus of control scored higher on indices of transformational leadership than managers with an external locus of control. All of these studies provide a reasonable empirical base for the specification of the personality and motivational variables offered here as important executive qualities.

Knowledge and Expertise

Several of the conceptual models described in this report emphasize the importance of executive knowledge and expertise. Jacobs and Jaques (1987) argued fundamentally that executives add value to their organization by developing a framework of understanding, or a causal map of the organization within its environment, that is used to provide meaning for the activities and efforts of organizational members. Conceptual capacities of the leader are used to derive these elaborate knowledge structures that drive collective action. Strategic choice and behavioral complexity models also propose functional knowledge and expertise as critical senior leadership competencies. For example, Quinn (1984; Hooijberg & Quinn,

1992) argued that the *monitor* role required as part of his Competing Values model was facilitated by technical expertise. From the strategic management perspective, Hambrick and Mason (1984) noted that knowledge of different functional areas was related to the quality of executive decisionmaking (see also Hambrick, 1981b). They proposed that experience with output organizational functions was positively associated with organizational growth. Further, in stable environments, experience in throughput processes were associated with profitability, while in turbulent environments, output functional experience was more critical. Some researchers have argued that executives tend to bring their own functional perspective to strategic decisionmaking (Dearborn and Simon, 1958). However, Hitt and Tyler (1992) noted that executives typically have a range of functional experiences. Thus, their beliefs and knowledge structures represent an integration of these experiences. Similarly, Hoffman and Hegarty (1993) proposed that a range of different expertise was associated with innovative decisionmaking, including general management; expertise regarding marketing and product research and development; and expertise regarding finance, personnel management, and production.

Empirical research with executive leaders also has provided support for the importance of leader knowledge and expertise. Lefebvre and Lefebvre (1992) reported that the level of functional expertise possessed by executives, particularly in engineering and production, was associated with firm innovation. Hoffman and Hegarty (1993) examined executive expertise in general management, marketing, production, research and development, and finance. They found that each form of expertise contributed significant variance to the degree of influence exerted by executives on innovation decisions. Interview-based studies by Kotter (1982a, 1982b) and Kaplan (1986) provided qualitative evidence of executive knowledge and organizational success. While these studies are informative, there is a need, however, for more research with executive-level managers that examines both the content and structure of their knowledge representations and how the quality of executive knowledge influences individual and organizational effectiveness.

Component of Executive Flexibility

A consistent theme in research on executive leadership qualities is the notion of *flexibility*. For example, Streufert and Swezey (1986) contrasted hierarchical integrative complexity from flexible integrative complexity in terms of the structure of cognition. Hierarchical complexity reflected fixed relationships among conceptual elements in a cognitive space, whereas flexible complexity resulted in dynamic and fluid relationships among conceptual elements that varied according to changes in environmental stimuli. Streufert and Swezey noted that “where *flexible* integration can be responsive to anticipated changes in the environment that would require reconceptualizations of event relationships, hierarchical integration cannot” (p. 17). For this reason, managers who exhibit flexible integrative complexity are hypothesized to be better executives than those who display hierarchical integrative complexity, particularly in a fluid and complex environment.

Zaccaro, Gilbert et al. (1991) argued for the importance of behavioral flexibility to successful organizational leadership. Because the social situation confronting executives requires a diversity of responses, they need to be able to discern what responses are required in particular situations and respond accordingly. Other researchers have operationalized this flexibility as “self-monitoring,” defined by Synder (1974; 1979; see also Briggs, Cheek, & Buss, 1980) as having three components: a concern for social appropriateness, a sensitivity to social cues, and an ability to control one’s behavior in response to those cues. Several studies have associated a measure of this construct with various indices of leadership (Dobbins, Long, Dedrick, & Clemons, 1990; Ellis, 1988; Ellis, Adamson, Deszca, & Cawsay, 1988; Foti & Cohen, 1986; Garland & Beard, 1979; Rueb & Foti, 1990; Zaccaro, Foti, & Kenny, 1991). Others have linked behavioral flexibility operationalized in this manner to activities required of executive leaders, including adaptiveness to new situations (Gangestad & Synder, 1985; Synder, 1979), boundary-spanning effectiveness (Caldwell & O'Reilly (1982), and communication effectiveness and persuasiveness (Sypher & Sypher, 1983). Two studies, one in a military sample (Gilbert &

Zaccaro, 1995), the other in an industrial one (Howard & Bray, 1988), reported significant correlations between measures of behavioral flexibility and career advancement.

Zaccaro, Gilbert et al. (1991) argued that behavioral flexibility is grounded in social reasoning skills that provide the foundation for a leader's ability to make appropriate responses across diverse social situations. This suggests that behavioral flexibility depends in part on skill in differentiating and integrating social domain knowledge; i.e., on integrative cognitive complexity. Flexibility also requires, however, that leaders display openness and tolerance in the face of social uncertainty and ambiguity. This quality, defined in terms of openness to experience, has been recognized as a major personality dimension distinguishing individuals (McCrae & Costa, 1987, 1991). Further, behavioral flexibility can become behavioral vacillation under conditions of uncertainty unless individuals possess a degree of self-discipline that forces closure on a behavioral action, even when social cues do not point clearly to an appropriate response set. These observations have led several researchers to argue that flexibility, and related personal qualities (e.g., adaptability, openness), are important executive personality characteristics (Howard & Bray, 1988; Miller & Toulouse, 1986; Mumford, Zaccaro et al., 1993).

These various perspectives suggest that executive flexibility emerges from an integrated constellation of cognitive, social, and dispositional qualities. This constellation is illustrated in Figure 10-3. Three general sets of individual qualities are portrayed: behavioral flexibility, flexible integrative complexity, and flexibility as a dispositional quality. The overlapping circles in this model represent the premise that the effective executive leadership emerges in part from the *joint* influence of these qualities. That is, these characteristics are not considered additive or independent in their influence on executive leadership. For example, integrative complexity allows the leader to develop the elaborate response models required in complex social domains; however, behavioral flexibility reflects the mechanism of translating leader thought and reflection to appropriate leader action across diverse organizational scenarios.

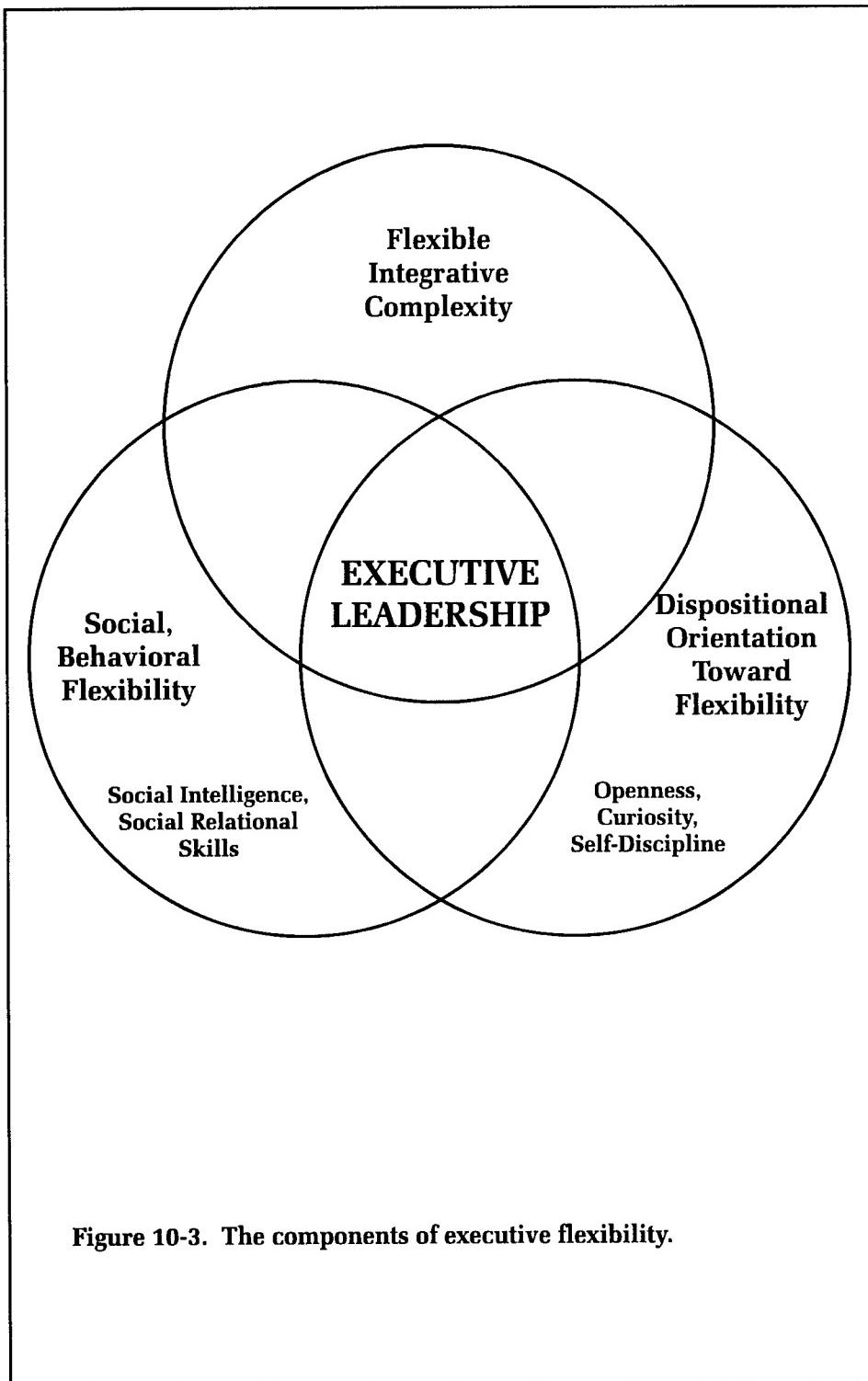


Figure 10-3. The components of executive flexibility.

Boal and Whitehead (1992) described individuals who are high on both of these dimensions as “informed flexibles” who have “both a wide array of cognitive maps with which to interpret the situation and a wide array of behavioral responses” (p. 239). Their approach, however, assumes an independence between these two qualities. The constellation in Figure 10-3 emphasizes their *interdependence* in terms of successful executive leadership.

Both cognitive and behavioral flexibility are facilitated by a disposition-based flexibility. Because individuals who can be characterized as high in this quality display adaptiveness instead of rigidity in dynamic social domains, they are more likely to be behaviorally flexible in such situations. Likewise, conceptual capacity and the constructions of elaborate frames of reference, as described by Stratified Systems Theory, necessitate a degree of openness and curiosity on the part of the executive leader. Without this quality and a high tolerance for ambiguity, such leaders could not cope with the dynamic and complex environment they need to model. Another aspect of this dimension, though, is a self-discipline that brings a leader to closure in a conceptual domain. Streufert and Swezey (1986, p. 69) noted a downside of flexible integrative complexity in that “the higher the level of integration and the more flexible the integrative style, the more likely an inability to close for decisionmaking may emerge.” Self-discipline minimizes the likelihood that a conceptually complex executive will cycle through too many decision iterations without reaching a functional level of conceptual understanding. However, the openness to new experiences that is part of disposition-based flexibility prevents such understandings from becoming rigidified.

Effective executive leadership lies at the nexus of these three interdependent qualities. Such leadership is not likely to emerge from just one or even two of these qualities, particularly in turbulent or dynamic organizational environments. More fundamentally, social or behavioral flexibility will not be displayed unless leaders also possess the disposition to be flexible as well as the conceptual skills to develop and distinguish among different situationally appropriate response

scripts. Therefore, research on executive leadership that assesses one or more of these qualities to the exclusion of the others will yield an incomplete or even misdirected picture of executive leadership.

RECOMMENDATIONS FOR FUTURE MILITARY RESEARCH ON EXECUTIVE LEADERSHIP

This report has summarized a significant body of conceptual and empirical research on executive leadership. As the integrated model illustrates, there is an emerging consensus about the general nature of executive leadership work and the personal qualities necessary to accomplish it well. However, conceptual research on executive leadership has far outpaced confirmatory empirical research. This is particularly true in the military domain. As noted in Chapter 3, a significant proportion of the research on military senior or strategic leadership has relied on methodologies that yield primarily qualitative data. Much of the research used to identify military executive performance requirements has been grounded in a single set of interviews completed with 142 general officers and civilian executives (Harris & Lucas, 1991; Jaques et al., 1986; Lucas & Markessini, 1993; Markessini et al., 1994). Such research provides a good starting point for additional studies that use different methodologies to derive evidence that confirm or disconfirm the conceptual premises underlying this research program (i.e., Stratified Systems Theory). Unfortunately, while such studies have been initiated (Mumford, Zaccaro et al., 1993; Zaccaro et al., 1996; Steinberg & Leaman, 1990a, 1990b), their samples have not included officers above the rank of colonel.

A recommended model of topics for research on military executive leadership is shown in Figure 10-4. A central element in this model is *executive leader characteristics*. These are the personal qualities that facilitate the successful accomplishment of executive performance requirements. These characteristics provide a framework for (a) the construction of measures and tools that can be used for executive selection and assessment, and (b) training and development programs that target one or more of them.

The construction of leader assessment tools that can be used in military applications requires their demonstration as assessing the executive capacities, skills, and dispositional qualities they were intended to capture (i.e., they need to demonstrate construct validity). Measures of executive characteristics also need to be linked with the accomplishment of executive performance requirements, and indirectly with organizational performance. Thus far, there has been little, if any, research with top military executives (i.e., with General Officers) demonstrating that proposed executive qualities, such as conceptual capacity, actually promote successful executive-level leadership or unit effectiveness. Therefore, despite a strong conceptual foundation, there is insufficient empirical evidence to confirm that this capacity should be the focus of executive assessment and development.

Thus, a fundamental recommendation for future research on military executive leadership is that any program of research topics be conducted within the systematic framework described in Figure 10-4. This model is a basic one that has driven most research on personnel selection and assessment (e.g., Dunnette 1963), measurement validation (Ghiselli, Campbell, & Zedeck, 1981), and the validation of development interventions (Goldstein, 1986, 1991). It represents a more complete and comprehensive approach than the ones that have driven prior research on military executive leadership because it specifically links (a) executive characteristics with executive performance requirements, and (b) executive performance with organizational success. Executive characteristics are also the foundation for leader assessment and development. Using such a model as the basis for research within the Army will result in a more systematic and coherent body of knowledge regarding the determinants and effective development of successful military leadership.

The remaining recommendations in this section are grouped into three themes: *research topics*, *measurement approaches*, and *developmental guidelines*. These themes represent the issues of interest to the Army that have guided prior research on military executive leadership (Johnson, 1987). This set of themes also

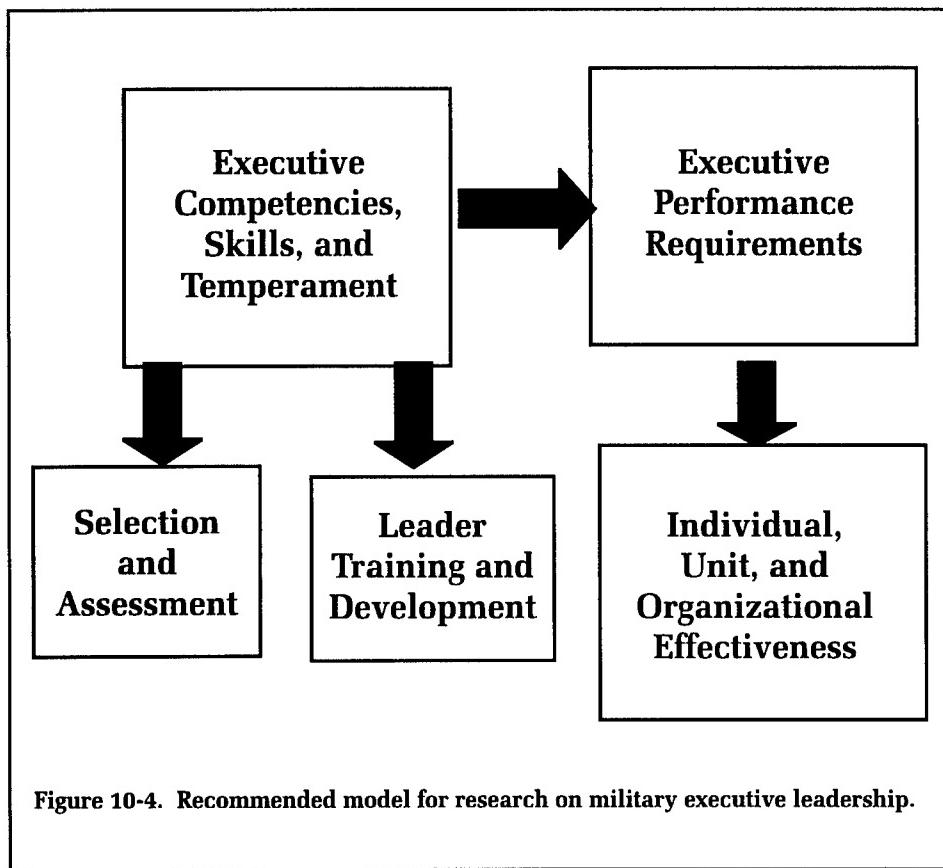


Figure 10-4. Recommended model for research on military executive leadership.

includes the major components of the integrated leader performance requirements model as well as the elements of the research model shown in Figure 10-4. As such, the following recommendations are consistent with the above admonition that future military research follow the latter model.

Research Topics

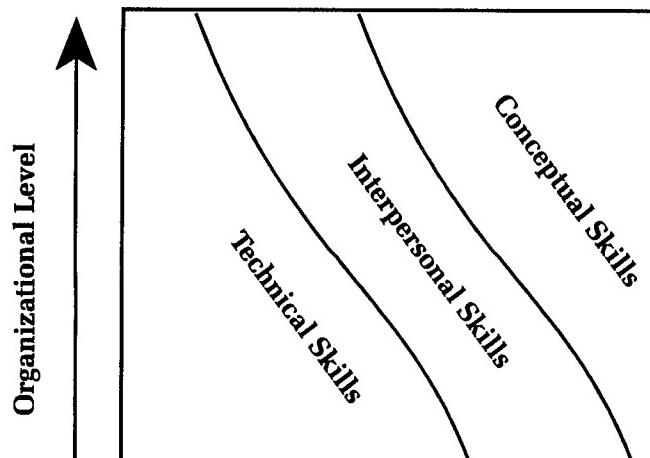
Social complexity and social capacities. Much of the research on executive leadership sponsored by the Army has been predicated on the reasonable premise that information-processing demands that must be addressed by leaders increase as they ascend the organizational hierarchy. For this reason, conceptual capacities and skills have been the central focus of military executive assessment and development. Technical and interpersonal skills are considered to be proportionately less

important for executive performance. This perspective is shown in Figure 10-5a. It is widely advocated by many leadership theorists (e.g., Katz, 1955, Katz & Kahn, 1966, 1978; Lawrence & Lorsch, 1967; Yukl, 1994) and is part of Army doctrine (U.S. Army, 1987).

The integrated model in Figure 10-1 indicates that in addition to information processing demands, social complexity increases as one ascends the organizational hierarchy. Upper level leaders need to manage multiple organizational units, interact with constituencies outside of the organization, use more complex forms of social influence and persuasion, develop social networks, and build consensus around an organizational direction among multiple, possibly conflicting, groups. Thus social skills and capacities also become more important at higher organizational levels. This perspective is illustrated in Figure 10-5b.

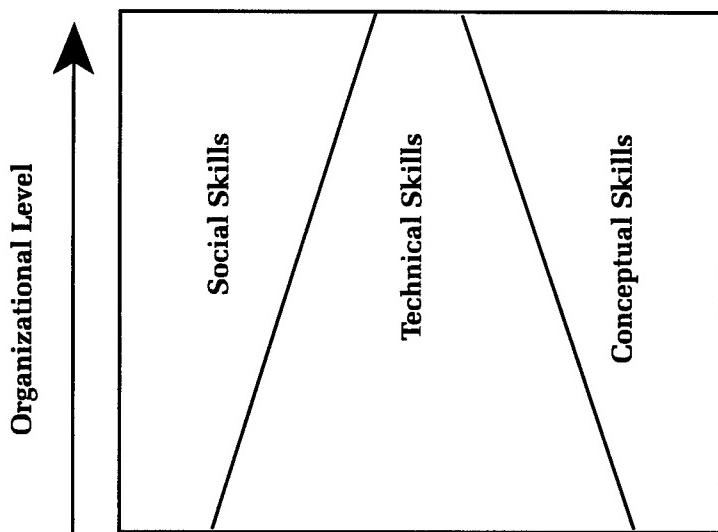
The increased importance of social skills for executives has been suggested by several theorists. Zaccaro, Gilbert et al. (1991) argued that social intelligence is an individual quality that contributes to successful executive leadership. In support of this argument, Gilbert and Zaccaro (1995) reported empirical evidence that (a) senior military officer scored higher on measures of social intelligence than junior officers, and (b) system perception skills were more strongly associated with career achievement in senior officers than in their lower ranking counterparts. Kotter (1982a, 1982b) observed the importance of social networking development and consensus building in his interviews with top organizational managers. Also, Boyatzis (1982) reported from analyses of managerial critical incidents that key executive managerial competencies included managing group processes and developing others. Finally, McCall & Lombardo (1983; Lombardo & McCauley, 1988) found that top executives who fail, or “derail,” exhibited weak interpersonal skills. Indeed, they observed that “the most frequent cause for derailment was insensitivity to others” (p. 5).

Given the importance of social skills and capacities as executive competencies, the following recommendation is offered:



a. Traditional view of organizational level
and requisite leader competencies

Note: Adapted from Army Pamphlet 600-80, 1987.



b. Alternate view

Figure 10-5. Two perspectives of organizational level and requisite leader competencies.

Research on military executive leadership should focus on (a) the identification of particular social competencies that facilitate the successful accomplishment of executive performance requirements; (b) the development of validated measures that assess these competencies; and (c) the construction and validation of executive developmental and training interventions that target these competencies.

Executive cognitive models. Jacobs and Jaques (1987) argued that executives add value to their organizations by building integrated causal maps and frames of reference that are used to give meaning to and guide organizational action. Along these lines, Thomas, Clark, and Gioia (1993, p. 240) noted “the imposition of meaning on issues characterized by ambiguity has become the hallmark of the modern top manager.” The mental models executives form of their organization and its environment may arguably be the most *proximal* or direct cause of executive action and performance. That is, other capacities and skills affect performance through their influences on the formation and quality of these models. This mediated effect is posited by a variety of theorists (Huff, 1990; Jacobs & Jaques, 1987; Kiesler & Sproull, 1982; Streufert & Swezey, 1986; Zaccaro, Marks, O’Connor-Boes, & Costanza, 1995). Moreover, Barr, Stimpert, and Huff (1992) reported from an empirical study of CEO cognition that “*mental models* of managers are a better predictor than *managerial characteristics* of whether changes in top management team membership will be associated with changes in strategy” (p. 33).

This cognitive perspective has become increasingly prominent in strategic management research (Huff, 1990; Schwenk, 1984; Thomas et al., 1993; Walsh & Fahey, 1986), and it is a significant part of the conceptual framework that has been the basis for much research on military executive leadership (Jacobs & Jaques, 1987, 1990, 1991). Nonetheless, while research with nonmilitary samples has begun to empirically examine the role of executive mental models in organizational leadership, few if any such empirical studies have been completed with military samples (cf. Zaccaro et al., 1995). Such research is necessary to fully understand how military executives add value to their

constituent organizations. The growing body of research in nonmilitary and business domains provides one methodological framework for conducting such studies with military samples. The following is recommended:

Research should be directed at the measurement of the mental models and cognitive maps developed by military executives. Such research efforts should also examine how these cognitive structures are related to executive action and organizational performance.

Leader direction-setting. One of the earliest conceptualizations of executive leadership functions (Barnard, 1938) emphasized the leader's role in setting organizational direction. This function is also an integral part of each of the conceptual models described in this report. Further, as suggested both by Jacobs and Jaques (1990) and the integrated model described in Figure 10-1, this requirement exists at all organizational levels, although its accomplishment becomes significantly more complex at higher organizational levels.

Despite the ubiquity of this concept in executive leadership theory, there is insufficient empirical research on the nature of leader direction and how an articulated direction influences subsequent collective action. A number of strategic management theorists have specified what constitutes effective strategy and the implementation of such strategies (Mintzberg, 1987; 1990; Quinn, 1980; Rumelt, 1980). Visionary leadership theorists also have described effective visions and how they become incorporated into executive action (Bass, 1985; House, 1977; House & Shamir, 1993; Nanus, 1992). Nonetheless, there is little understanding, developed from empirical evidence, of what elements of visions or strategies are most important for galvanizing collective behavior. How a correspondence between long-term vision or strategy is established and, more importantly, how that correspondence is monitored and changed when circumstances warrant such change needs to be investigated. Along these lines, a recent review by Yukl and Van Fleet (1992, p. 179) raises the following questions requiring additional research on visionary leadership:

- How do leaders develop a vision that will appeal to followers?
- How do leaders obtain the commitment of followers to a new vision, especially in a large organization where there are competing visions?
- How do leaders empower followers, and what aspects of the process are most important?

There remain important questions that require research attention, particularly in military settings. In addition, several other questions can be added that also deserve attention:

- What is the amount of gain in performance at different organization levels that can be attributed to leader direction-setting?
- What is the role of leader values in the construction of vision or long-term strategies?
- How do leader values influence the process of strategic implementation?
- How does the nature and process of leader direction-setting change at different organizational levels?
- What is the strength of association between leader conceptual and social competencies and the formation and implementation of leader direction?

A resolution of these questions should contribute to a better understanding of the process of leadership, not only at executive levels, but also at other points in the organizational hierarchy. Accordingly, the following is recommended:

Research should be directed at (a) the nature of leader direction-setting in military units; (b) how such direction-setting changes at multiple organizational levels; and (c) how leader direction is translated into effective collective action.

Military executive succession. A potentially significant aspect of military executive leadership is the relatively short tours of duty for most upper level officers—typically, military

leaders will serve in a command position for a period of no more than 2 to 3 years. This time span of service can change significantly the dynamics of leadership for a position incumbent. Markessini et al. (1994) noted from their interviews with civilian military executives that organizationally mandated time frames for work can “constrain the individual’s conception of the length of time necessary to perform particular tasks” (p. 11). They reported the following statement from an interview with one civilian executive (pp. 11-12):

Typically speaking, we do not even see a two-year tenure for General Officers; we see more between one and two. That is simply insufficient for most Two-star jobs. The reason why I think a man like [name deleted] was very effective as the DCSRDA is that he was here for four years. Really, five if you count his year as an aide to the DCSRDA, because he had a year plus to watch as a close colleague, and then hopefully he will stay here for two or three years. That will be good. When you look at the extraordinary turnover in some parts of the Army, it is very depressing. They should almost force a person to sign up and stay on the job when assigned for two or three years and just require that.

Because the typical term of office for many high-level military officers is relatively short, the initiation or implementation of any long-term strategic plan or policy change requires different social influence tactics. Senior officers who are operating even within a 2- to 5-year time horizon must factor into their frames of reference the fact that they will not be in position to monitor and facilitate the implementation of any plans they may determine as necessary for military organizational effectiveness and adaptation. Further, if the strategic plan is not implemented with appropriate levels of social support, the next position incumbent may have the intention, and certainly has the power, to undo any policy changes. The tactics that current short-term position incumbents consider for strategic implementation may be different than when they can expect to retain an office over a significant duration of the time needed for effective policy change.

Jaques et al. (1986) observed that civilians working as part of the Senior Executive Service (SES) can facilitate the continuity of policies implemented for long-term organizational effectiveness. They noted (p. 9):

The continuity provided by SESs is recognized as being of great importance. An SES can continue through the tours of three or four general officers, helping to orient each in turn, and ensuring that there is no interruption in critical long-term projects. Though few SES members have a formal role in Army policy development, this continuity does indirectly give some SESs the opportunity to have a major impact at the policy level. However, it was held also that SESs can and do remain too long in one position. Position requirements should determine tour of duty. For example, an SES tour of duty of 6 to 8 years was suggested as optimum for those SES positions providing continuity. It would encompass several general officer changes, and at the same time be within the 5 to 10 year time-span for Str. [Strata] V.

Despite these observations by Jaques et al. (1986) and Markessini et al. (1994), there has been little research that explicitly examines the influence, negative or positive, of short tours of duty on military leadership. Rapid turnover of top leaders may lead to greater innovation and more organizational responsiveness to environmental change. However, a recent analysis by Farquhar (1995) suggested otherwise. She compared the implications of short-term and extended leadership in the context of interim leaders serving during a leadership succession period. She observed that short-term leaders typically operate within a limited time horizon, even when organizational problems require a longer term perspective. Their focus becomes day-to-day maintenance of organizational conditions rather than long-term strategic change. Further, their relationships with their followers are more pragmatic, less interdependent, more business-like, and limited in time and depth. While some of these factors of short-term leadership may not be necessarily negative, if these factors generalize to upper level military

officers, their implications for the practice of military leadership may be significant. This suggests the following recommendation:

Research should be directed at investigating the influence and dynamics of relatively rapid military leader succession on executive leadership processes and outcomes.

Top management military teams. As shown in Appendix B, a significant amount of research has been completed in the strategic management domain on the nature and characteristics of top management teams. However, few of the ideas and findings from this literature have been examined with military samples. Stratified Systems Theory specifies the importance of top management teams for executive work. For example, Jacobs and Jaques (1987, p. 43) indicated that:

the CEO and the executive vice presidents of a corporation should have a working relationship that is different from that of the relationship between the stratum V manager and his or her subordinate managers. In the latter case, a clear line organization exists, and the relationship is usually directive in nature. In the corporate case, the CEO and the EVPs [executive vice presidents] form a more collegial working group in which relationships are less directive and in which clear line relationships are deliberately deemphasized. The utility of this collegium as an uncertainty reducing mechanism would seem to be quite high.

Jacobs and Jaques (1987) described two central uncertainty reduction mechanisms provided by top executive teams. First, when authority relationships are weakened, or at least suppressed, lower ranking individuals are likely to contribute more readily to the identification of meaningful patterns in the organization's environment. In a strong authority arrangement, conformity pressures would result in lower ranking individuals adopting with little question the organizational patterns discerned by their superiors, even if such patterns are inaccurate. Second, if the top executive team is constructed with individuals of varying functional expertise, the team as a whole has considerably more resources (what might be called "collective

conceptual capacity") to develop more complex representations of the organization's operating environment. These factors led Jacobs and Jaques (1987) to suggest that "it would in theory be possible for a corporate collegium to deal with more highly complex external environments than could individuals" (p. 44). Indeed, several empirical studies in business settings confirm the positive influence of diverse top management team demographics on organizational processes and outcomes (Bantel & Jackson, 1989; Hoffman & Hegarty, 1993; Keck & Tushman, 1993; Priem, 1990; Wiersema & Bantel, 1992).

Top management teams may mitigate the effects of rapid military executive succession noted beforehand. While individuals may turn over after a relatively short time in position, the executive team may exist for a longer period, transcending the tenure of individual members. If policy recommendations become accepted and instituted as group norms, then their implementation is more likely to occur, even after the original policy formulators are gone from the scene. Thus, top military executives who are considering and implementing long-term strategic changes may not need to focus on enacting actual structural and policy changes; instead, given the short duration of executive tenure in the military, they may be more effective in persuading their peers and colleagues to adopt proposed changes and institutionalizing them in the history and norms of the enduring management team.

There is some evidence that such processes are indeed followed by military executives. The interview studies with General Officers cited consensus building and network development as key elements of military executive work (Harris & Lucas, 1991; Jacobs and Jaques, 1990; Lucas & Markessini, 1993). Presumably, these processes reflect the operation of top executive teams in these domains. If that is the case, then more systematic research should be directed at how such teams form, operate, and contribute to military leader effectiveness. The following recommendation is suggested:

Research on military executive leadership should include an examination of top management team processes and characteristics.

Methodological Recommendations

Multivariate research strategies. A problem with previous research on military executive leadership is that while the questions raised by various conceptual approaches call for a multivariate research strategy, the strategy selected by researchers is typically a bivariate one. Often, the sample size or the methodology used by researchers (e.g., interviews) will constrain the use of multivariate approaches. For example, Stratified Systems Theory suggests several performance requirements of top military executives. These include building frames of reference for the organization, long-term planning, consensus building, and network development. A pertinent question is which performance requirement is most important, or do they all make unique contributions to the organization? Also, Stratified Systems Theory argues for the primacy of conceptual capacities and cognitive skills over technical and interpersonal skills as requisite executive competencies. The test of these questions and assumptions requires a multivariate research strategy, where more than one predictor is examined in relation to targeted criteria, and the data are analyzed using multiple regression techniques. Covariate analyses are necessary to isolate the influences of particular determinants of executive leadership. When researchers offer theoretical models of the determinants and consequences of executive leadership, structural equation modeling techniques should be applied to assess their validity. These and other multivariate strategies would provide more sophisticated examinations of military executive leadership than prior studies.

Recently, Zaccaro et al. (1996) used multiple regression strategies to examine the unique associations among various leader characteristics, leader problem solving skills, and indices of officer career achievement. However, their sample included military officers ranging in rank from 2nd Lieutenant to Colonel. The sample did not include General Officers or military executives. The same is true of Zaccaro et al. (1995), who examined the influence of multiple officer mental models on leader problem solving. Many examples exist of multivariate studies using nonmilitary samples of upper level managers and

executives (e.g., Bourgeois, 1985; Calori, Johnson, & Sarnin, 1994; Dollinger, 1984; Hitt & Tyler, 1991; House et al., 1991; Howell & Avoilo, 1993; Judge & Spitzfaden, 1995; Miller & Toulouse, 1986). Some of these demonstrate the feasibility of such research even with small or limited samples that mirror some of the constraints in military samples (e.g., Calori et al., 1994; House et al., 1991). The general lack of multivariate strategies in military leadership research suggests the following recommendation:

A greater proportion of research on military executive leadership should be completed using multivariate methodological strategies.

Defining military executive leadership criteria. A fundamental argument in the executive leadership literature has been whether the actions of top organizational leaders indeed contribute to organizational effectiveness (Barrick, Day, Lord, & Alexander, 1991; Day & Lord, 1988; Lieberson & O'Connor, 1972; Salancik & Pfeffer, 1977; Meindl & Ehrlich, 1987; Weiner & Mahoney, 1981). This argument has been resolved in favor of the postulate that executives do indeed add substantial value to their organizations (Barrick et al., 1991; Day & Lord, 1988; Romanelli & Tushman, 1988). As suggested by Figure 10-4, however, key questions become (a) how do executives influence organizational effectiveness; and (b) what characteristics of the executive influence organizational outcomes through their effects on the accomplishment of executive performance requirements? The resolution of these important research questions in a military domain requires a specification of what constitutes military executive and organizational effectiveness.

A large body of research has been completed on the concept of organizational effectiveness in business and government domains (e.g., Cameron, 1986; Cameron & Whetton, 1983; Campbell et al., 1970; Cohen, 1993; Georgopoulos & Tannenbaum, 1957; Goodman & Pennings, 1977; Kirchoff, 1977; Maggiotto & McKenna, 1992; Mahoney & Weitzel, 1969; Price, 1972; Quinn & Rohrbaugh, 1981). A review of this literature is beyond the scope of this report, and interested readers are referred to the cited references. Moreover, much of this research

may not apply directly to military leadership because of unique properties of military performance requirements. Accordingly, what is necessary is a research program to identify and validate indices of executive and organizational performance in military domains. ARI has sponsored research on the generic measurement of organizational effectiveness (Seashore, Cammann, Fichman, Ford, Ross, & Rousseau, 1982; Seashore, Fichman, Fakhouri, Ford, Rousseau, & Sutton, 1982) as well as on the measurement of performance in small military units (Tremble, 1992; Tremble & Alderks, 1991; Twohig & Tremble, 1987; 1991). Moreover, Pence, Welp, and Stenstrom (1990) developed a measurement system for assessing corps-level performance in exercises such as the Joint Exercise Simulation System. The validation of this system can provide criteria useful for the assessment of corps commander effectiveness and an examination of executive actions and individual competencies that contribute to high performance in this domain. These efforts indicate that initial attention has already been directed at the important question of systems-level leadership performance. Along these lines, the following is recommended:

Research should be focused on the identification and validation of measures that assess military executive effectiveness.

Development of constructed-response measures of executive competencies. This report has documented significant support for the premise that high-level conceptual capacities and cognitive skills are significant determinants of effective executive leadership. The further validation of this premise requires the measurement of such capacities and skills. Several researchers have argued that cognitive skill assessment should not rest on the use of multiple choice inventories; instead, such measures should rely on *constructed-response tasks* (Ackerman & Smith, 1988; Birenbaum & Tatsuoka, 1987; Sebrechts et al., 1994; Ward et al., 1980). Constructed-response tasks are defined as "any task for which the space of examinee responses is not limited to a small set of presented options. As such, the examinee is forced to formulate, rather than recognize, an answer" (Bennett, 1993a, p. 100). Such measures have been cited as more closely resembling

the kinds of tasks completed in actual performance settings (Bennett, 1993a; Bennett et al., 1990; Sebrechts et al., 1991). Constructed-response measures can vary in format from multiple choice, where some construction is required before response selection, to an aggregation of multiple constructed responses selected over time and organized into a portfolio (Bennett, 1993b; Snow, 1993). The Career Path Appreciation technique, developed to measure conceptual capacity, represents one form of a constructed response measure (Stamp, 1988; Lewis, 1993, 1995; McIntyre et al., 1993). Mumford, Zaccaro et al. (1993) and Zaccaro et al. (1996) described other constructed response measures that were used to assess problem solving skills in military officers (ranging in rank from 2nd lieutenant to colonel).

Preliminary evidence on these measures indicate considerable success in assessing qualities related to military leadership. Stamp (1988) reported predicted validity coefficients for the CPA in the range of .70 to .92. Lewis (1995) found significant correlations between the CPA and ratings of strategic thinking skill and general officer potential. Zaccaro et al. (1995) reported that their constructed response measures of complex problem solving skills explained a significant proportion of variance in officer career achievement indices; these measures also differentiated across Army officer grades such that upper level officers scored higher on these measures than lower level officers. These findings support the value of developing measures that utilize a constructed response format to assess executive leadership competencies. Accordingly, the following recommendation is offered:

Research should be directed to the development of constructed response tasks that can be used to assess military executive leadership competencies, particularly cognitive capacities and skills.

Developmental Guidelines

The essential task for executive leader development efforts is to develop the complex cognitive and social competencies and skills required for effective work at that level. A consistent theme in the literature on managerial and executive development

is that such skills emerge from training and work experiences that push the leader to the limits of his or her retained schemas and ways of behaving; when these comfortable patterns of thinking and behaving no longer suffice in completing required work assignment, individuals who are likely to succeed at higher levels of organizational leadership will be those who can develop new functional schemas and behavior patterns. This theme is present in several of the conceptual models described in this report. For example, Lewis and Jacobs (1992, pp. 135-136) argue the following, based on Stratified Systems Theory:

Slow and progressive changes in the way a person constructs experience occur not primarily as a result of being taught better ways of making sense of the world but, instead, in response to directly experiencing the limitations of one's current way of making sense of experience (Kegan, 1982) The heart of managerial development, therefore, should be the planned assignment of high-potential leaders and managers to successively more challenging work roles where a mentor is present who can help the individual better understand the new, more complicated world in which the new manager must now operate.

A central focus of managerial development, then, is the provision of challenging work assignments to potential executive leaders that push them to construct new understandings of their more complex operating environment. The role of work challenge in managerial development is also cited by Hooijberg and Quinn (1992), who argue from the behavioral complexity perspective (i.e., the Competing Values model):

We propose . . . that having to deal with challenges to the work role will elicit the enactment of new leadership roles and/or the rebalancing of leadership roles. This change, in turn, we propose, will lead to more behavioral complexity. It is the interaction between the individual and his or her environment that stimulates development.

McCauley, Eastman, and Ohlott (1995) identified several job components, called "stretch assignments," that pose challenging

developmental experiences for the position incumbent. These components are illustrated in Table 10-4. The five categories of developmental experiences are *transitions*, *creating change*, *high level of responsibility*, *nonauthority relationships*, and *obstacles*. Transitions refer to the manager moving to a new position or being assigned new functional responsibilities. Creating change involves the manager being given responsibility for decisions that could entail changes in current organizational policies or components. High responsibility means assigning to the manager tasks and projects having significant consequences for the organization. These tasks involve the resolution of complex problems that may require more boundary spanning than tasks with less responsibility. Placing managers in nonauthority relationships means that they must cultivate new forms of social influence that are likely to be more operative at the executive ranks. Finally, managers who are required to confront obstacles learn how to cope successfully with the difficulties engendered by such circumstances. McCaulley et al. (1995) noted that, "successfully dealing with obstacles deepens the manager's understanding of problematic situations and can increase confidence in facing such challenges again" (p. 98).

Work experiences that contain one or more of these components provide the kinds of challenges that foster the development of new and more adaptive ways of thinking, understanding, and behaving (Bartunek & Louis, 1988; Davies & Easterby-Smith, 1984; McCaulley et al., 1995; McCaulley, Ruderman, Ohlott, & Morrow, 1994; Stumpf, 1989). These work factors are likely to stretch the limits of managers' operational schemas, requiring accommodation of new conceptualizations for them to adapt to changing work conditions. Such factors ought to be the basis for executive development interventions. Indeed, Howard and Bray (1988) found that managerial advancement was associated with the degree to which managers experienced the following job factors early in their career: job stimulation, unstructured assignments, and overall job challenge. Howard and Bray concluded from their observations that "It had been important, then, regardless of the men's level in the early years, to provide them with stimulation, challenge, and enough freedom to develop their own resourcefulness" (p. 175).

Table 10-4. Description of 15 Developmental Components of Managerial Jobs

Transitions

1. *Unfamiliar Responsibilities:* The manager must handle responsibilities that are new, very different, or much broader than previous ones.
2. *Proving Yourself:* The manager has added pressure to show others he or she can handle the job.

Creating Change

3. *Developing New Directions:* The manager is responsible for starting something new in the organization, making strategic changes in the business, carrying out a reorganization, or responding to rapid changes in the business environment.
4. *Inherited Problems:* The manager has to fix problems created by a former incumbent or take over problem employees.
5. *Reduction Decisions:* Decisions about shutting down operations or staff reductions have to be made.
6. *Problems With Employees:* Employees lack adequate experience, are incompetent, or are resistant.

High Level of Responsibility

7. *High Stakes:* Clear deadlines, pressure from senior managers, high visibility, and responsibility for key decisions make success or failure in this job clearly evident.
8. *Managing Business Diversity:* The scope of the job is large with responsibilities for multiple functions, groups, products, customers, or markets.
9. *Job Overload:* The sheer size of the job requires a large investment of time and energy.
10. *Handling External Pressure:* External factors that impact the business (e.g., negotiating with unions or government agencies; working in a foreign culture; coping with serious community problems) must be dealt with.

Table 10-4. Description of 15 Developmental Components of Managerial Jobs

Nonauthority Relationships

11. *Influencing Without Authority*: Getting the job done requires influencing peers, higher management, external parties, or other key people over whom the manager has no direct authority.

Obstacles

12. *Adverse Business Conditions*: The business unit or product line faces financial problems or difficult economic conditions.
13. *Lack of Top Management Support*: Senior management is reluctant to provide direction, support, or resources for current work or new projects.
14. *Lack of Personal Support*: The manager is excluded from key networks and get little support and encouragement from others.
15. *Difficult Boss*: The manager's opinions or management style differs from those of the boss, or the boss has major shortcomings.

Note: These components correspond to the 15 scales on the Development Challenge Profile.

Note: Adapted from "Linking management selection and development through stretch assignments," by C. D. McCauley, L. J. Eastman, & P. J. Ohlott, in *Human Resource Management*, 34(1), 1995. Copyright 1995 by John Wiley & Sons, Inc. Reprinted by permission of John Wiley & Sons, Inc.

Despite these observations and the assertions of Lewis and Jacobs (1992) regarding the need for job challenge, Army development efforts do not appear to reflect the kinds of "stretch assignments" that foster executive development. Much of the effort appears to be instruction or school-based. However, Lewis and Jacobs noted the inadequacy of such interventions for promoting the increases in conceptual capacity needed for executive work:

The reason traditional instruction methods typically fail to have an impact on conceptual capacity is that the information presented can often be assimilated to the student's current cognitive structures. When they cannot, the instructional materials are typically such a small part of the individuals' experience that persons can compartmentalize the resulting dissonance and thereby avoid changing their fundamental conceptual orientation to their larger world (pp. 135-136).

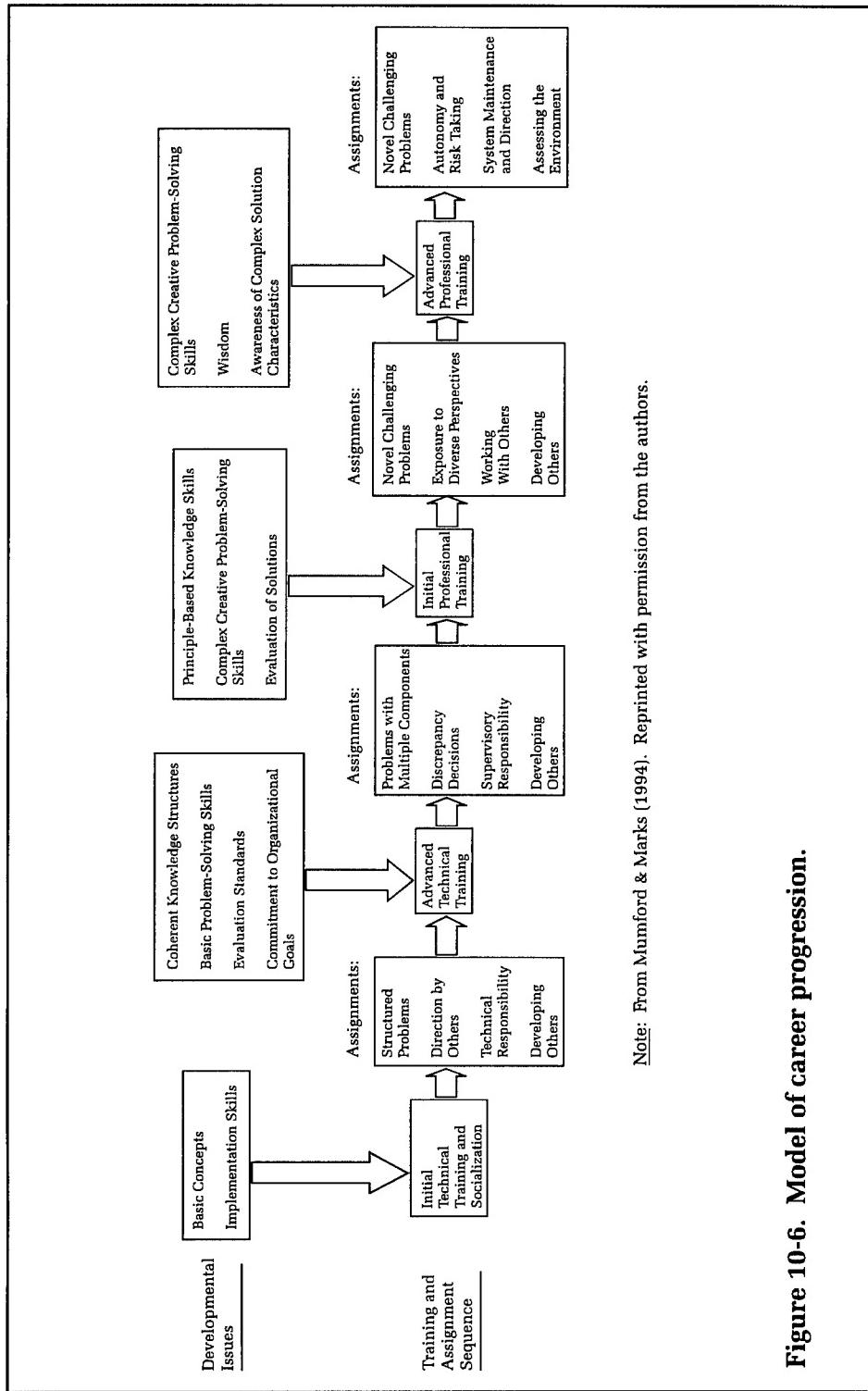
This is not to say that all Army schooling fails to create the conditions for cognitive shifts. Stewart's interviews with battalion commanders indicated that they found their experiences at the AWC to be "mind broadening," suggesting that they may have resulted in new conceptualizations of how senior officers understood their larger operating environment. This observation suggests that school-based training can have a "stretching" effect. Nonetheless, it is more likely that instructional interventions will facilitate requisite conceptual shifts when they are paired with work assignments that allow the practice of learned skills, and then stretch the limits of these skills such that new ways of thinking and behaving can emerge. Or, the officer is made aware of his or her limitations and is open to new approaches and concepts that may be offered through further instruction and future work assignments.

Mumford and Marks (1994) offer a model of matching instructional and work assignments to reflect the kinds of conceptual gains required at successively higher levels of organizational leadership. An adaptation of this model is presented in Figure 10-6. It assumes four levels of leadership, in which an officer proceeds from technical-based training and socialization to the acquisition and utilization of complex problem solving skills and complex ways of conceptualizing the systems within which he or she must operate. Each level of instruction is followed by a series of assignments that ought to stretch the limits of skills and capabilities at that level of development. Mumford and Marks indicated in their model (a) the development issues (i.e., knowledge, skills, and capacities that need to emerge at that level of organizational leadership; (b)

the primary focus of instruction at each career point; and (c) the characteristics of challenging or stretching assignments at each career point. Work assignments occur under the guidance of superiors who understand their responsibilities to provide the degree of work challenge that fosters leader growth and to facilitate the development of more adaptive ways of thinking and behaving. Mumford and Marks suggested, though, that mentoring experiences "may not prove especially beneficial until leaders have progressed far enough in their careers and have the expertise, problem-solving skills, and social appraisal skills that make mentoring a useful experience" (p. 60). While this model emerged from data gathered from military officers regarding the kinds of experiences they found rewarding at various career stages, this model should be characterized as a prescriptive one.

These observations and the model by Mumford and Marks (1994) suggest that Army executive development efforts should (a) emphasize work and job challenges that provide stretch experiences for emerging senior officers, and (b) should integrate school-based and unit assignments into a more cohesive framework, where one experience builds on the other. School curricula should focus more directly on providing stretch experiences, or at least the foundation for such experiences, in unit assignments. As reported in Chapter 3, current Army leader training to provide the basis for developing appropriate executive leader frames of reference has generally failed (Laskey et al., 1990; Lucas et al., 1988; Stewart, 1992). The following is recommended:

Research on Army executive development should explore the validity and utility of "stretch assignments" in fostering growth in requisite executive competencies. These assignments should occur in school-based instruction and in unit command responsibilities. Further, both developmental pillars should be integrated more clearly around the dynamic of leadership experiences that facilitate the growth of new organizational frames of reference.



Note: From Mumford & Marks (1994). Reprinted with permission from the authors.

Figure 10-6. Model of career progression.

SUMMARY

Kimmel's (1981) review of executive leadership research, conducted approximately 15 years ago, indicated a significant body of research on such leadership, although this research was quite small in quantity in comparison to the bulk of research completed on leadership as a whole up to that point. The present report and its reviews of conceptual and empirical research demonstrate the tremendous interest in leadership at the top of the organization that has burgeoned since 1980. There are now multiple conceptual models of executive leadership along with a growing empirical research base that supports several theoretical postulates derived from these models. Promising assessment strategies used to measure requisite executive characteristics are being developed and validated. Finally, several conceptual perspectives of executive leader development are beginning to converge on a common framework. All of these efforts portend significant advancements in the study of executive leadership in the near future.

A significant portion of this research base, particularly in terms of conceptual or theory development, has been sponsored by ARI. The Army and ARI recognized the importance of executive leadership research early on and devoted considerable resources to its study. The resultant research program was grounded in Stratified Systems Theory. This theory reflects several of the prescriptions for an executive leadership theory proposed by Day and Lord (1988); it also provided a promising assessment tool that may predict executive leadership potential better than most other measures (Stamp, 1988). However, Stratified Systems Theory is limited in several important ways, including (a) its almost exclusive reliance on conceptual skills as key executive competencies; (b) its overemphasis on the external systemic focus of top organizational executives; and (c) its lack of emphasis on the particular processes of strategic decisionmaking and subordinate influence. The other conceptual approaches outlined in this report provide alternate perspectives of executive leadership that offer some of the elements lacking in Stratified Systems Theory. However, these frameworks are also limited in scope. Greater progress in understanding executive leadership is

likely through an integration of these different models. The leader requirements model, the list of executive competencies and temperamental qualities, and the constellation of characteristics contributing to executive flexibility that were presented in this chapter reflect such an integration and route to progress.

The advancement of executive leadership research, particularly in military domains, will also occur through adoption of a research framework like the one in Figure 10-4, where (a) the accomplishments of executive performance requirements are linked to unit and organizational effectiveness, (b) executive competencies and temperament qualities are examined as determinants of such accomplishments, and (c) validated competencies and qualities become the basis for measure development and the evaluation of potential executive development programs. Such a research program should be grounded in multivariate methodologies instead of the bivariate ones that have characterized much of the previous and current efforts. This program should include the development of multiple assessment strategies that reflect a wider range of executive characteristics. Finally, this program should incorporate both qualitative and quantitative methodologies, reflecting idiographic and nomothetic approaches to the study of executive leadership.

The incorporation of these and other recommendations offered in this report is likely to fuel growth in executive leadership research even greater than that experienced over the past 15 years. The results should be a better and more thorough understanding of the dynamics, processes, and products of military executive leadership and its development.

References

- Ackerman, P. L. (1986). Individual differences in information processing: An investigation of intellectual abilities and task performance during practice. *Intelligence*, 10, 101-139.
- Ackerman, P. L. (1987). Individual differences in skill learning: An integration of psychometric and information processing perspectives. *Psychological Bulletin*, 102, 3-27.
- Ackerman, T. A., & Smith, P. L. (1988). A comparison of the information provided by essay, multiple choice, and free-response writing tests. *Applied Psychological Measurement*, 12, 117-128.
- Aldrich, H. E. (1979). *Organizations and environments*. Englewood Cliffs, NJ: Prentice Hall.
- Alexander, L. D. (1979). *The effect level in the hierarchy and functional area have on the extent Mintzberg's roles are required by managerial jobs*. Proceedings, Academy of Management, Atlanta, GA, 186-189.
- Alliger, G. M., & Janak, E. A. (1989). Kirkpatrick's levels of training criteria: Thirty years later. *Personnel Psychology*, 42, 331-341.
- Amason, A. C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving a paradox for top management teams. *Academy of Management Journal*, 39, 123-148.
- Ancona, D. G. (1987). *Groups in organizations: Extending laboratory models*. In C. Hendrick (Ed.), *Group processes and intergroup relations*. Newbury Park, CA: Sage.
- Ancona, D. G., & Caldwell, D. F. (1992). Bridging the boundary: External process and performance in organizational teams. *Administrative Science Quarterly*, 37, 527-548.
- Anderson, J. R. (1990). *Cognitive psychology and its implications* (3rd ed.). New York: Freeman.

- Anderson, J. R. (1993). Problem solving and learning. *American Psychologist*, 48, 35-44.
- Ansoff, H. I. (1979). *Strategic management*. London: Macmillan.
- Anstey, E. (1977). A thirty year follow-up of the CSSB procedure with implications for the future. *Journal of Occupational Psychology*, 50, 149-159.
- Asch (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology*, 41, 1230-1240.
- Ashby, W. (1952). *Design for a brain*. New York: Wiley.
- Atwater, L., Penn, R., & Rucker, L. (1991). Personal qualities of charismatic leaders. *Leadership and Organizational Development Journal*, 12, 7-10.
- Atwater, L., & Yammarino, F. J. (1993). Personal attributes as predictors of superiors' and subordinates' perceptions of military academy leadership. *Human Relations*, 46, 645-668.
- Avolio, B. J. (1994). The "natural": Some antecedents to transformational leadership. *International Journal of Public Administration*, 17, 1559-1581.
- Avolio, B. J., & Bass, B. M. (1988). Charisma and beyond. In J. G. Hunt, B. R. Baliga, H. P. Dachler, & C. A. Schriesheim (Eds.), *Emerging leadership vistas* (pp. 29-49). Lexington, MA: Heath.
- Avolio, B. J., & Bass, B. M. (1991). *The full range of leadership development: Basic and advanced manuals*. Binghamton, NY.
- Avolio, B. J., & Bass, B. M. (1994). *Evaluate the impact of transformational leadership training at individual, group, organizational and community levels*. Final report to the W. K. Kellogg Foundation. State University of New York at Binghamton, Binghamton, NY.
- Avolio, B. J., & Bass, B. M. (1995). Individual consideration viewed at multiple levels of analysis: A multi-level framework for examining the diffusion of transformational leadership. *Leadership Quarterly*, 6, 199-218.

- Avolio, B. J., Bass, B. M., & Jung, D. I. (1996). *Construct validation of the multifactor leadership questionnaire MLQ-Form 5x* (CLS Report 96-1). Binghamton, NY: Center for Leadership Studies, Binghamton University, State University of New York.
- Avolio, B. J., & Gibbons, T. C. (1988). Developing transformational leaders: A lifespan approach. In J. A. Conger & R. N. Kanungo (Eds.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp. 276-308). San Francisco, CA: Jossey-Bass.
- Avolio, B. J., & Howell, J. M. (1992). The impact of leader behavior and leader-personality match on satisfaction and unit performance. In K. E. Clark, M. B. Clark, & D. R. Campbell (Eds.), *Impact of leadership*. Greensboro, NC: The Center for Creative Leadership.
- Avolio, B. J., Waldman, D. A., & Einstein, W. O. (1988). Transformational leadership in management game simulation. *Group and Organization Studies*, 13, 59-80.
- Baehr, M. E. (1992). *Predicting success in higher level positions: A guide to the system for testing and evaluation of potential*. New York: Quorum.
- Baird, I. S., & Thomas, H. (1985). Toward a contingency model of risk taking. *Academy of Management Review*, 10, 230-243.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice Hall.
- Bantel, K. A. (1993). Strategic clarity in banking: Role of top management team demography. *Psychological Reports*, 73, 1187-1201.
- Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal*, 10, 1-7-124.

- Barber, H. F. (1990). Some personality characteristics of senior military officers. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 441-454). Greensboro, NC: Center for Creative Leadership.
- Barnard, C. I. (1938). *The functions of the executive*. Cambridge, MA: Harvard University Press.
- Barr, P., Stimpert, L., & Huff, A. (1992). Cognitive change, strategic action, and organizational renewal. *Strategic Management Journal*, 13, 15-36.
- Barrick, M. R., Day, D. V., Lord, R. G., & Alexander, R. A. (1991). Assessing the utility of executive leadership. *Leadership Quarterly*, 2, 9-22.
- Barrick, M. R., & Mount, M. K. (1991). The big five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, 44, 1-26.
- Bartunek, J. M., & Louis, M. R. (1988). The design of work environments that stretch managers capacities for complex thinking. *Human Resources Planning*, 11, 13-22.
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press.
- Bass, B. M. (1988). The inspirational process of leadership. *Journal of Management Development*, 75, 21-31.
- Bass, B. M. (1990). *Bass & Stogdill's handbook of leadership: Theory, research and managerial applications* (3rd ed.). New York: Free Press.
- Bass, B. M. (1996). *A new paradigm of leadership: An inquiry into transformational leadership*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Bass, B. M., & Avolio., B. J. (undated). *Intuitive-empirical approach to biodata analysis*. Center for Leadership Studies, State University of New York at Binghamton, Binghamton, NY.

- Bass, B. M., & Avolio, B. J. (1990). The implications of transactional and transformational leadership for individual, team, and organizational development. In R. W. Woodman, & W. A. Passmore (Eds.), *Research in organizational change and development*. Greenwich, CT: JAI Press.
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership: A response to critiques. In M. M. Chemers & R. Ayman (Eds.), *Leadership theory and research* (pp. 49-80). San Diego, CA: Academic Press.
- Bass, B. M., Waldman, D. A., Avolio, B. J., & Bebb, M. (1987). Transformational leadership: The falling dominoes effect. *Group and Organization Studies*, 12, 73-87.
- Bell, G. B., & Hall, H. E. (1954). The relationship between leadership and empathy. *Journal of Abnormal and Social Psychology*, 49, 156-157.
- Bennett, R. E. (1993a). Toward intelligent assessment: An integration of constructed response testing, artificial intelligence, and model based measurement. In N. Frederiksen, R. J. Mislevy, & I. I. Bejar (Eds.), *Test theory for a new generation of tests* (pp. 99-124). Hillsdale, NJ: Erlbaum.
- Bennett, R. E. (1993b). On the meanings of constructed response. In R. E. Bennett & W.C. Ward (Eds.), *Construction versus choice in cognitive measurement* (pp. 1-28). Hillsdale, NJ: Erlbaum.
- Bennett, R. E., Rock, D. A., Braun, H. I., Frye, D., Spohrer, J. C., & Soloway, E. (1990). The relationship of contrained free-response items to multiple choice and open-ended items. *Applied Psychological Measurement*, 14, 151-162.
- Bennis, W. & Nanus, B. (1985). *Leaders: The strategies for taking charge*. New York: Harper & Row.
- Bentz, V. J. (1987). *Explorations of scope and scale: The critical determinant of high-level effectiveness* (Tech. Rep. No. 31). Greensboro, NC: Center for Creative Leadership.

- Birenbaum, M., & Tatsuoka, K. K. (1987). Open-ended versus multiple-choice response formats: It does make a difference for diagnostic purposes. *Applied Psychological Measurement, 11*, 385-395.
- Bluedorn, A. C., Johnson, R. A., Cartwright, D. K., & Barringer, B. R. (1994). The interface and convergence of the strategic management and the organizational environment domains. *Journal of Management, 20*, 201-262.
- Boal, K. B., & Bryson, J. M. (1988). Charismatic leadership: A phenomenological and structural approach. In J. G. Hunt, B. R. Baliga, H. P. Dachler, & C. A. Schriesheim (Eds.), *Emerging leadership vistas* (pp. 11-28). Lexington, MA: D. C. Heath.
- Boal, K., & Whitehead, C. J. (1992). A critique and extension of the stratified systems theory perspective. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multi-organizational perspective* (pp. 237-253). Westport, CT: Quorum Books.
- Bobko, P., & Shwartz, J. P. (1984). A metric for integrating theoretically related but statistically unrelated constructs. *Journal of Personality Assessment, 48*, 281-320.
- Bourgeois, L. J., III (1984). Strategic management and determinism. *Academy of Management Review, 9*, 586-596.
- Bourgeois, L. J., III (1985). Strategic goals, perceived uncertainty, and economic performance in volatile environments. *Academy of Management Journal, 28*, 548-573.
- Bourgeois, L. J., III, & Eisenhardt, K. M. (1988). Strategic decision processes in high velocity environments: Four cases in the microcomputer industry. *Management Science, 34*, 816-835.
- Boyatzis, R. R. (1982). *The competent manager: A model for effective performance*. New York: Wiley.
- Boyd, B. K. (1991). Strategic planning and financial performance. *Journal of Management Studies, 28*, 353-374.
- Braun, H. I. (1988). Understanding scoring reliability: Experiments in calibrating essay readers. *Journal of Educational Statistics, 13*, 1-18.

- Bray, D. W. (1982). The assessment center and the study of lives. *American Psychologist*, 37, 180-189.
- Bray, D. W., Campbell, R. J., & Grant, D. L. (1974). *Formative years in business: A long term AT&T study of managerial lives*. New York: Wiley.
- Briggs, S. R., Cheek, J. M., & Buss, A. H. (1980). An analysis of the self-monitoring scale. *Journal of Personality and Social Psychology*, 38, 679-686.
- Briggs-Myers, I. & McCauley, M. H. (1985). *Manual: A guide to the development of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- Brown, A. L. (1978). Knowing when, where, and how to remember: The problem of metacognition. In R. Glaser (Ed.), *Advances in instructional psychology*. New York: Halsted Press.
- Bruner, J. (1966). *Toward a theory of instruction*. New York: Norton.
- Bryant, C. D. (1994). *Strategies for Augmentation Initiatives for Leadership Self-Development Program* (ARI Research Note 94-29). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A285 307)
- Burns, J. M. (1978). *Leadership*. New York: Harper & Row.
- Byars, L. L. (1984). The strategic management process: A model and terminology. *Managerial Planning*, 32, 38-44.
- Calder, B. J. (1977). An attributional theory of leadership. In B. Staw & G. Salancik (Eds.), *New directions in organizational behavior*. Chicago: St. Clair Press.
- Caldwell, D. F., & O'Reilly, C. A., III (1982). Boundary spanning and individual performance: The impact of self-monitoring. *Journal of Applied Psychology*, 67, 124-127.
- Calori, R., Johnson, G., & Sarnin, P. (1994). CEO's cognitive maps and the scope of the organization. *Strategic Management Journal*, 15, 437-457.

- Cameron, K. (1986). Effectiveness as paradox. *Management Science*, 32, 539-553.
- Cameron, K., & Whetton, D. A. (1983). *Organizational effectiveness: A comparison of multiple models*. New York: Academic Press.
- Campbell, D. T. (1955). An error in some demonstrations of the superior social perceptiveness of leaders. *Journal of Abnormal and Social Psychology*, 51, 694-695.
- Campbell, D. T. (1988). Task complexity: A review and analysis. *Academy of Management Review*, 13, 40-52.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81-105.
- Campbell, J. P., Dunnette, M. D., Lawler, E. E., & Weick, K. E. (1970). *Managerial behavior, performance and effectiveness*. New York: McGraw Hill.
- Cantor, N., & Kihlstrom, J. F. (1987). *Personality and social intelligence*. Englewood Cliffs, NJ: Prentice Hall.
- Carlson, S. (1951). *Executive behavior: A study of the work load and training methods of managing directors*. Stockholm: Strombergs.
- Carroll, S. J., & Gillen, D. J. (1987). Are the classical management functions useful in describing managerial work. *Academy of Management Review*, 12, 38-51.
- Child, J. (1972). Organization structure, environment and performance: The role of strategic choice. *Sociology*, 6, 2-22.
- Chowdhry, K., & Newcomb, T. W. (1952). The relative abilities of leaders and nonleaders to estimate opinions of their own groups. *Journal of Abnormal and Social Psychology*, 47, 51-57.
- Church, L. M., & Alie, R. E. (1986). Relationships between managers' personality characteristics and their management levels and job foci. *Akron Business and Economic Review*, 4, 29-45.

- Chusmir, L. H., & Koberg, C. S. (1986). Creativity differences among managers. *Journal of Vocational Behavior, 29*, 240-253.
- Clement, S. D., & Ayres, D. B. (1976). *The matrix of organizational leadership dimensions*. Washington, DC: U.S. Army Administration Center.
- Cohen, S. A. (1993). Defining and measuring effectiveness in public management. *Public Productivity and Management Review, 25*, 45-57.
- Collins, J. C., & Porras, J. I. (1991, Fall). Organizational vision and visionary organizations. *California Management Review, 30*-82.
- Conger, J. A., & Kanungo, R. N. (1987). Toward a behavioral theory of charismatic leadership in organizational settings. *Academy of Management Review, 12*, 637-647.
- Conger, J. A., & Kanungo, R. N. (1988). Behavioral dimensions of charismatic leadership. In J. A. Conger & R. N. Kanungo (Eds.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp. 78-97). San Francisco, CA: Jossey-Bass.
- Conger, J. A., & Kanungo, R. N. (1992). Perceived behavioural attributes of charismatic leadership. *Canadian Journal of Behavioural Science, 24*(1), 86-102.
- Copeman, G., Luijk, H., & Hanika, F. (1963). *How the executive spends his time*. London: Business Publications.
- Cowan, D. A., Fiol, C. M., & Walsh, J. P. (1992). A midrange theory of strategic choice processes. In R. L., & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational-level perspective* (pp. 63-79). Westport, CT: Quorum Books.
- Crookall, P. (1989). *Management of inmate workers: A field test of transformational and situational leadership*. Ph.D. Dissertation, University of Western Ontario. London, Ontario.
- Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.

- Daboub, A. J., Rasheed, A. M. A., Priem, R. L., & Gray, D. (1995). Top management team characteristics and corporate illegal activity. *Academy of Management Review, 20*, 138-170.
- Daft, R. L., Sormunen, J., & Parks, D. (1988). Chief executive scanning, environmental characteristics, and company performance: An empirical study. *Strategic Management Journal, 9*, 123-139.
- Daft, R. L., & Weick, K. E. (1984). Toward a model of organizations as interpretation systems. *Academy of Management Review, 9*, 284-295.
- Dalton, D. R., & Kesner, I. F. (1985). Organizational performance as an antecedent of inside/outside chief executive succession: An empirical assessment. *Academy of Management Journal, 28*, 749-762.
- Davidson, J. E., Deuser, R., & Sternberg, R. J. (1994). The role of metacognition in problem solving. In J. Metcalf & A. P. Shimamura (Eds.), *Metacognition: Knowing about knowing*. Cambridge, MA: MIT Press.
- Davies, J., & Easterby-Smith, M. (1984). Learning and developing from managerial work experiences. *Journal of Management Studies, 2*, 169-183.
- Day, D. V., & Lord, R. G. (1988). Executive leadership and organizational performance: Suggestions for a new theory and methodology. *Journal of Management, 14*, 453-464.
- Dearborn, D. C., & Simon, H. A. (1958). Selective perception: A note on the departmental identifications of executives. *Sociometry, 21*, 140-144.
- Denison, D. R., Hooijberg, R. & Quinn, R. E. (1991). *Paradox and performance: A theory of the behavioral complexity of effective leaders*. Working paper.
- Dobbins, G. H., Long, W. S., Dedrick, E. J., & Clemons, T. C. (1990). The role of self-monitoring and gender on leader emergence: A laboratory and field study. *Journal of Management, 16*, 493-502.

- Dollinger, M. J. (1984). Environmental boundary spanning and information processing effects on organizational performance. *Academy of Management Journal*, 27, 351-368.
- Donaldson, G., & Lorsch, J. (1983). *Decision making at the top*. New York: Basic Books.
- Drenth, P., & Koopman, P. (1992). Duration and complexity in strategic decision-making. In F. Heller (Ed.), *Decision making and leadership*. Cambridge, MA: Cambridge University Press.
- Driver, M. J., & Streufert, S. (1966). *The general incongruity adaption level (GIAL) hypothesis: An analysis and integration of cognitive approaches to motivation* (Publication No. 114). Lafayette, IN: Purdue University, Institute for Research in the Behavioral, Economic, and Management Sciences.
- Driver, M. J., & Streufert, S. (1966). *Group composition, input load, and group information processing* (Institute Paper No. 142). Lafayette, IN: Purdue University, Herman C. Kraennert Graduate School of Industrial Administration, Institute for Research in the Behavioral, Economic and Management Sciences.
- Dunnette, M. D. (1963). A modified model for selection research. *Journal of Applied Psychology*, 47, 317-323.
- Dunnette, M. D. (1972). *Validity study results for jobs relevant to the petroleum refining industry*. Washington, DC: American Petroleum Institute.
- Dutton, J. E., & Jackson, S. E. (1987). Categorizing strategic issues: Links to organizational action. *Academy of Management Review*, 12, 76-90.
- Eden, D. (1984). Self-fulfilling prophecy as a management tool: Harnessing pygmalion. *Academy of Management Review*, 9, 64-73.
- Eden, D. (1990). *Pygmalian in management: Productivity as a self-fulfilling prophecy*. Lexington, MA: Lexington Books.

- Ellis, R. J. (1988). Self-monitoring and leadership emergence in groups. *Personality and Social Psychology Bulletin, 14*, 681-693.
- Ellis, R. J., Adamson, R. S., Deszca, G., & Cawsay, T. F. (1988). Self-monitoring and leadership emergence. *Small Group Behavior, 19*, 312-324.
- Emery, F. E., & Trist, E. L. (1965). The causal texture of organizational environments. *Human Relations, 18*, 21-32.
- Fahey, L., & Narayanan, V. (1989). Linking changes in revealed causal maps and environmental change: An empirical study. *Journal of Management Studies, 25*, 361-378.
- Farquhar, K. W. (1995). Not just undergraduates: The dynamics of short-term leadership. *Human Resource Management, 34*, 51-70.
- Farh, J. L., Hoffman, R. C., & Hegarty, W. H. (1984). Assessing environmental scanning at the subunit level: A multitrait-multimethod analysis. *Decision Sciences, 15*, 197-220.
- Ferentinos, C. (1996). *Linking social intelligence and leadership: An investigation of leaders' situational responsiveness under condition of changing group tasks and membership*. Unpublished doctoral dissertation, George Mason University.
- Feuerstein, R. (1980). *Instrumental enrichment: An intervention program for cognitive modifiability*. Baltimore: University Park Press.
- Finkelstein, S. (1992). Power in top management teams: Dimensions, measurement and validation. *Academy of Management Journal, 35*, 505-538.
- Finkelstein, S., & Hambrick, D. C. (1990). Top-management tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly, 25*, 484-503.
- Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin, 51*, 327-358.

- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist*, 34, 906-911.
- Fleishman, E. A. (1975). Toward a taxonomy of human performance. *American Psychologist*, 30, 1127-1149.
- Fleishman, E. A., & Friedman, L. (1994). *Cognitive competencies related to management performance requirements in R&D organizations*. Fairfax, VA: Center for Behavioral and Cognitive Studies, George Mason University.
- Fleishman, E. A., & Mumford, M. D. (1989a). Abilities as causes of individual differences in skill acquisition. *Human Performance*, 2, 201-222.
- Fleishman, E. A., & Mumford, M. D. (1989b). Individual attributes and training performance: Applications of ability taxonomies in instructional systems design. In I. L. Goldstein & Associates (Eds.), *Training and development in organizations*. San Francisco, CA: Jossey-Bass.
- Fleishman, E. A., Mumford, M. D., Zaccaro, S. J., Levin, K. Y., Korotkin, A. L., & Hein, M. B. (1991). Taxonomic efforts in the description of leader behavior: A synthesis and functional interpretation. *Leadership Quarterly*, 2, 245-287.
- Fleishman, E. A., & Quaintance M. K. (1984). *Taxonomies of human performance: The description of human tasks*. Orlando, FL: Academic Press.
- Fleishman, E. A., & Salter, J. A. (1963). Relation between the leader's behavior and his empathy toward subordinates. *Journal of Industrial Psychology*, 1, 79-84.
- Ford, M. E., & Tisak, M. S. (1983). A further search for social intelligence. *Journal of Educational Psychology*, 75, 196-206.
- Foti, R. J., & Cohen, B. A. (1986). *Self-monitoring and leadership emergence*. Unpublished manuscript.
- Frederickson, J. W. (1984). The comprehensiveness of strategic decision processes: Extension, observation, future directions. *Academy of Management Journal*, 27, 445-466.

- Frederickson, J., & Iaquinto, A. (1989). Inertia and creeping rationality in strategic decision processes. *Academy of Management Journal*, 32, 526-542.
- Fredrickson, J. W., & Mitchell, T. R. (1984). Strategic decision processes: Comprehensiveness and performance in an industry with an unstable environment. *Academy of Management Journal*, 27, 399-423.
- Gage, N. L., & Exline, R. V. (1953). Social perception and effectiveness in discussion groups. *Human Relations*, 6, 381-396.
- Gagné, R. M. (1985). *The conditions of learning and theory of instruction*. Philadelphia, PA: Holt, Rinehart, & Winston.
- Gangestad, S. W., & Snyder, M. (1985). On the nature of self-monitoring: An examination of a latent causal structure. In P. Shaver (Ed.), *Review of Personality and Social Psychology* (Vol. 6) (pp. 65-85). Beverly Hills, CA: Sage.
- Garofolo, J., & Lester, F. K. (1985). Metacognition, cognitive monitoring, and mathematical performance. *Journal for Research in Mathematics Education*, 16, 163-176.
- Gardner, W. L., III, & Schermerhorn, J. R., Jr. (1992). Strategic operational leadership and the management of supportive work environments. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational-level perspective* (pp. 99-117). Westport, CT: Quorum Books.
- Garland, H., & Beard, J. F. (1979). Relationship between self-monitoring and leader emergence across two task situations. *Journal of Applied Psychology*, 64, 72-76.
- Geiwitz, J. (1993). *A conceptual model of metacognitive skills* (ARI Tech. Rep. 51-1). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Georgopoulos, B. S., & Tannenbaum, A. S. (1957). A study of organization effectiveness. *American Sociological Review*, 22, 534-540.

- Gershefski, G. W. (1970). Corporate models—The state of the art. *Management Science, 16*, 303-312.
- Ghiselli, E. E., Campbell, J. P., & Zedeck, S. (1981). *Measurement theory for the behavioral sciences*. New York: W. H. Freeman & Co.
- Gibb, B. (1994). The effects of environment and technology on managerial roles. *Journal of Management, 20*, 581-604.
- Gibbons, T. C. (1986). *Revisiting: The question of born vs. made: Toward a theory a theory of development of transformational leaders*. Doctoral dissertation, Fielding Institute, Santa Barbara, CA.
- Gilbert, J. A., & Zaccaro, S. J. (1995, August). *Social intelligence and organizational leadership*. Paper presented at the 103th annual convention of the American Psychological Association, New York.
- Gilmore, T. N. (1982). Leadership and boundary management. *Journal of Applied Behavioral Science, 18*, 343-356.
- Glick, W. H., Miller, C. C., & Huber, G. P. (1993). Upper-level diversity in organizations: Demographic, structural, and cognitive influences on organizational effectiveness. In G. P. Huber & W. H. Glick (Eds.), *Organizational change and redesign: Ideas and insights for improving performance* (pp. 176-214). New York: Oxford.
- Glueck, W. F. (1980). *Strategic management and business policy*. New York: McGraw Hill.
- Goldstein, I. L. (1986). *Training in organizations: Needs assessment, development and evaluation* (2nd ed.). Pacific Grove, CA: Brooks/Cole.
- Goldstein, I. L. (1991). Training in work organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 2) (pp. 506-620). Palo Alto, CA: Consulting Psychologists Press.
- Goodman, P. S. (1967). An empirical examination of Elliott Jaques' concept of time span. *Human Relations, 20*, 155-170.

- Goodman, P., & Pennings, J. (1977). *New perspectives on organizations' effectiveness*. San Francisco, CA: Jossey-Bass.
- Govindarajan, V. (1988). A contingency approach to strategy implementation at the business unit level: Integrating administrative mechanisms with strategy. *Academy of Management Journal*, 31, 828-853.
- Grimm, C. M., & Smith, K. G. (1991). Management and organizational change: A note on the railroad industry. *Strategic Management Journal*, 12, 557-562.
- Gupta, A. K. (1984). Contingency linkages between strategy and general managerial characteristics: A conceptual examination. *Academy of Management Review*, 9, 399-412.
- Gupta, A. K. (1987). SBU strategies, corporate-SBU relations, and SBU effectiveness in strategy implementation. *Academy of Management Journal*, 30, 477-500.
- Gupta, A. (1988). Contingency perspectives on strategic leadership: Current knowledge and future research directions. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers*. Greenwich, CT: JAI Press.
- Gupta, A. K., & Govindarajan, V. (1984). Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation. *Academy of Management Journal*, 27, 25-41.
- Haas, J. A., Porat, A. M., & Vaughn, J. A. (1969). Actual versus ideal time allocations reported by managers: A study of managerial behavior. *Personnel Psychology*, 22, 61-75.
- Halebian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal*, 36, 844-863.
- Hales, C. P. (1986). What do managers do? A critical review of the evidence. *Journal of Management Studies*, 23, 88-115.

- Hall, R. H. (1987). *Organizations: Structures, processes & outcomes* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Hall, R. H. (1991). *Organizations: Structures, processes & outcomes* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Hambrick, D. C. (1981a). Environment, strategy, and power within top management teams. *Administrative Science Quarterly*, 26, 253-275.
- Hambrick, D. C. (1981b). Specialization of environmental scanning activities among upper-level executives. *Journal of Management Studies*, 18, 299-320.
- Hambrick, D. C., (1982). Environmental scanning and organizational strategy. *Strategic Management Journal*, 3, 159-174.
- Hambrick, D. C. (1989). Guest editor's introduction: Putting top managers back in the strategy picture. *Strategic Management Journal*, 10, 5-15.
- Hambrick, D. C. (1994). Top management groups: A conceptual integration and reconsideration of the "team" label. In *Research in organizational behavior* (Vol. 16) (pp. 171-213). Greenwich, CT: JAI Press.
- Hambrick, D. C., & Brandon, G. (1988). Executive values. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers*. Greenwich, CT: JAI Press.
- Hambrick, D. C., Geletkanycz, M. A., & Frederickson, J. W. (1993). Top executive commitment to the status quo: Some tests of its determinants. *Strategic Management Journal*, 14, 401-418.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9, 194-206.
- Hannan, M. T., & Freeman, J. (1977). The population ecology of organizations. *American Journal of Sociology*, 82, 926-963.

- Harman, J., Tremble, T. R., Jr., & Goodwin, G. F. (1993). *Junior leader development in army units* (ARI Study Report No. 93-01). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A265 024)
- Harrell, A. M., & Stahl, M. J. (1981). A behavioral decision theory approach to measuring McClelland's trichotomy of needs. *Journal of Applied Psychology*, 66, 242-244.
- Harris, P., & Lucas, K. W. (1991). *Executive leadership: Requisite skills and developmental processes for three- and four-star assignments* (ARI Research Note 94-28). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A285 499)
- Hart, S. L., & Quinn, R. E. (1993). Roles executives play: CEOs, behavioral complexity, and firm performance. *Human Relations*, 46, 543-574.
- Hater, J. J., & Bass, B. M. (1988). Supervisors' evaluations and subordinates' perceptions of transformational leadership. *Journal of Applied Psychology*, 73, 695-702.
- Haythorn, W. W., Kimmel, M. J., & Steinberg, A. G. (1985). *Leadership on the future battlefield*. McLean, VA: Pergamon-Brassey's International Defense Publishers.
- Heller, F. A. (1972). *Managerial decision making: A study of leadership styles and power sharing among senior managers*. New York: Harper & Row.
- Hemphill, J. K. (1950). Relations between the size of the group and the behavior of "superior" leaders. *Journal of Social Psychology*, 32, 11-22.
- Hemphill, J. K. (1959). Job descriptions for executives. *Harvard Business Review*, 37, 55-67.
- Hemphill, J. K. (1960). *Dimensions of executive positions*. Columbus: OH: Ohio State University, Bureau of Business Research.

- Herriot, P. (1987). Graduate recruitment—Getting it right. *Employment Gazette, 95*, 78-83. London: Department of Employment.
- Hites, R. W., & Campbell, D. T. (1950). A test of the ability of fraternity leaders to estimate group opinion. *Journal of Social Psychology, 32*, 95-100.
- Hitt, M. A., Hoskisson, R. E., Johnson, R. A., & Moesel, D. D. (1993). *The market for corporate control and managerial commitment to innovation*. Paper presented at the annual meeting of the Academy of Management, Atlanta.
- Hitt, M. A., & Tyler, B. B. (1991). Strategic decision models: Integrating different perspectives. *Strategic Management Journal, 12*, 327-351.
- Hoffman, R. C., & Hegarty, W. H. (1993). Top management influence on innovations: Effects of executive characteristics and social culture. *Journal of Management, 19*, 549-574.
- Hogan, R., Raskin, R., & Fazzini, D. (1990). The dark side of charisma. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 343-354). West Orange, NJ: Leadership Library of America.
- Hollander, E. P., & Julian, J. W. (1970). Studies in leader legitimacy, influence, and innovation. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 5). New York: Academic Press.
- Holyoak, K. J. (1984). Mental models in problem solving. In J. R. Anderson & K. M. Kosslyn (Eds.), *Tutorials in learning and memory* (pp. 193-210). New York: Freeman.
- Hooijberg, R., & Quinn, R. E. (1992). Behavioral complexity and the development of effective managers. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational perspective* (pp. 161-175). Westport, CT: Quorum Books.
- Horne, J. H., & Lupton, T. (1965). The work activities of "middle managers": An exploratory study. *Journal of Management Studies, 2*, 14-33.

- Horvath, J. A., Forsyth, G. B., Sweeney, P. J., McNally, Wattendorf, J., Williams, W. M., & Sternberg, R. J. (1994). *Tacit knowledge in military leadership: Evidence from officer interviews* (ARI Tech. Rep. 1018). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- House, R. J. (1977). A 1976 theory of charismatic leadership. In J. G. Hunt & L. Larson (Eds.), *Leadership: The cutting edge*. Carbondale, IL: Southern Illinois University Press.
- House, R. J. (1992). Afterword: Stratified Systems Theory and leadership: Where do we go from here. In R. L. Phillips & J. G. Hunt (eds.), *Strategic leadership: A multiorganizational perspective*. Wesport, CT: Quorum Books.
- House, R. J., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, support for innovation: Key predictors of consolidated business unit performance. *Journal of Applied Psychology*, 78, 891-902.
- House, R. J., & Howell, J. M. (1992). Personality and charismatic leadership. *Leadership Quarterly*, 3, 81-108.
- House, R. J., & Shamir, B. (1993). Toward the integration of transformational, charismatic and visionary leadership theories. In M. Chemers & R. Ayman (Eds.), *Leadership theory and research: Perspectives and directions*. New York: Academic Press.
- House, R. J., Spangler, W. D., & Woycke, J. (1991). Personality and charisma in the U.S. presidency: A psychological theory of leader effectiveness. *Administrative Science Quarterly*, 36, 364-396.
- House, R. J., Woycke, J., & Fodor, E. M. (1988). Charismatic and noncharismatic leaders: Differences in behaviour and effectiveness. In J. A. Conger & R. N. Kanungo (Eds.), *Charismatic leadership* (pp. 98-121). San Francisco, CA: Jossey Bass.
- Howard, A., & Bray, D. W. (1988). *Managerial lives in transition: Advancing age and changing times*. New York: Guilford Press.

- Howell, J. M., & Avolio, B. J. (1993). Transformational leadership, transactional leadership, locus of control, and support for innovation: Key predictors of consolidated-business-unit performance. *Journal of Applied Psychology*, 78, 891-902.
- Howell, J. M., & Higgins, C. A. (1990). Champions of technological innovation. *Administrative Science Quarterly*, 35, 317-341.
- Hrebiniak, L. G., & Joyce, W. F. (1984). *Implementing strategy*. New York: Macmillan.
- Huff, A. (1990). *Mapping strategic thought*. Chichester, England: Wiley.
- Huff, A. S., & Fletcher, K. E. (1990). Conclusion: Key mapping decisions. In A. S. Huff (Ed.), *Mapping strategic thought*. Chichester, England: Wiley.
- Hunt, J. G. (1991). *Leadership: A new synthesis*. Newbury Park, CA: Sage.
- Hunt, J. G., Osborn, R. N., & Martin, H. J. (1981). *A multiple influence model of leadership* (ARI Technical Report No. 520). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A128 679)
- Hunter, J. E., & Hunter, R. F. (1984). Validity and utility of alternate predictors of job performance. *Psychological Bulletin*, 96, 72-98.
- Hunter, J. E., & Schmidt, F. L. (1990). *Methods of meta-analysis: Correcting error and bias in research findings*. Beverly Hills, CA: Sage.
- Ickes, W. J., & Barnes, R. D. (1977). The role of sex and self-monitoring in unstructured dyadic interactions. *Journal of Personality and Social Psychology*, 35, 315-330.
- Industrial College of the Armed Forces (1994). *A guide to the Strategic Leader Development Inventory*. Washington, DC: National Defense University, Industrial College of the Armed Forces.

- Isenberg, D. J. (1984). How senior managers think. *Harvard Business Review*, 62, 81-90.
- Jackson, S. E., & Dutton, J. E. (1988). Discerning threats and opportunities. *Administrative Science Quarterly*, 33, 370-387.
- Jacobs, T. O. (1983). Cognitive behavior and information processing under conditions of uncertainty. In R. F. Williams & R. D. Abeyta (Eds.), *Management of risk and uncertainty in systems acquisition: Proceedings of the defense risk and uncertainty workshop*. Fort Belvoir, VA: Army Procurement Research Office.
- Jacobs, T. O. (1985). The airland battle and leadership requirements. In J. G. Hunt & J. D. Blair (Eds.), *Leadership on the future battlefield*. Washington DC: Pergamon-Brassey's.
- Jacobs, T. O., & Jaques, E. (1987). Leadership in complex systems. In J. Zeidner (Ed.), *Human productivity enhancement*. New York: Praeger.
- Jacobs, T. O., & Jaques, E. (1990). Military executive leadership. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership*. Greensboro, NC: Center for Creative Leadership.
- Jacobs, T. O., & Jaques, E. (1991). Executive leadership. In R. Gal & A. D. Manglesdorff (Eds.), *Handbook of military psychology*, Chichester, England: Wiley.
- Jacobs, T. O., & Lewis, P. (1992). Leadership requirements in stratified systems. In R. L., & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational-level perspective* (pp. 8-25). Westport, CT: Quorum Books.
- Jaques, E. (1956). *Measurement of responsibility*. Cambridge, MA: Harvard University Press.
- Jaques, E. (1964). *Time span handbook*. London: Heinemann Educational Books.
- Jaques, E. (1976). *A general theory of bureaucracy*. Exeter, NH: Heinemann.

- Jaques, E. (1986). The development of intellectual capability: A discussion of Stratified Systems Theory. *Journal of Applied Behavioral Science*, 22, 361-384.
- Jaques, E. (1989). *Requisite organization*. Arlington, VA: Cason Hall.
- Jaques, E. (1990a). Task complexity. In G. H. Pollack (Ed.), *Creativity and work* (pp. 43-80). Madison, CT: International Universities Press.
- Jaques, E. (1990b). Cognitive complexity. In G. H. Pollack (Ed.), *Creativity and work* (pp. 81-100). Madison, CT: International Universities Press.
- Jaques, E. (1990c). Maturation of cognitive power. In G. H. Pollack (Ed.), *Creativity and work* (pp. 101-124). Madison, CT: International Universities Press.
- Jaques, E., & Clement, S. D. (1991). *Executive leadership: A practical guide to managing complexity*. Arlington, VA: Cason Hall.
- Jaques, E., Clement, S. D., Rigby, C., & Jacobs, T. O. (1986). *Senior leadership requirements at the executive level* (ARI Research Report No. 1420). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD B103 760)
- Jausovec, N. (1994a). *Flexible thinking: An explanation for individual differences in ability*. Cresskill, NJ: Hampton Press.
- Jausovec, N. (1994b). Metacognition in creative problem solving. In M. A. Runco (Ed.). *Problem finding, problem solving, and creativity*. Norwood, NJ: Ablex.
- Javidan, M. & Dastmalchian, A. (1993). Assessing senior executives: The impact of context on their roles. *The Journal of Applied Behavioral Science*, 29, 328-342.

- Johnson, E. M. (1987). Forward. In S. R. Stewart & J. M. Hicks, *Leader development training assessment of U.S. Army Training and Doctrine Command (TRADOC) brigadier commanders* (ARI Res. Rep. 1454). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Jonas, H. S., Fry, R. E., & Srivastva, S. (1990). The office of the CEO: Understanding the executive experience. *Academy of Management Executive*, 4, 36-67.
- Judge, W. Q., & Spitzfaden, M. (1995). The management of strategic time horizons within biotechnology firms. *Journal of Management Inquiry*, 4, 179-196.
- Kanungo, R., & Conger, J. A. (1992). Charisma: Exploring new dimensions of leadership behaviour. *Psychology and Developing Societies*, 4, 21-38.
- Kaplan, R. E. (1986). The warp and woof of the general manager's job. In B. Schneider & D. Schoorman (Eds.), *Facilitating work effectiveness*. Lexington, MA: Lexington Books.
- Katz, R. L. (1955, January-February). Skills of an effective administrator. *Harvard Business Review*, 33-42.
- Katz, R. (1982). The effects of group longevity on group communication and performance. *Administrative Science Quarterly*, 27, 81-104.
- Katz, D., & Kahn, R. L. (1966). *The social psychology of organizations*. New York: Wiley.
- Katz, D., & Kahn, R. L. (1978). *The social psychology of organizations* (2nd ed.). New York: Wiley.
- Keck, S. L., & Tushman, M. L. (1993). Environmental and organizational context and executive team structure. *Academy of Management Journal*, 36, 1314-1344.
- Kegan, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, MA: Harvard University Press.

- Keller, R. T. (1986). Predictors of the performance of project groups in R&D organizations. *Academy of Management Journal, 29*, 715-726.
- Kelly, J. (1993). *Facts against fictions of executive behavior: A critical analysis of what managers do*. Westport, CT: Quorum Books.
- Kenny, D. A., & Zaccaro, S. J. (1983). An estimate of variance due to traits in leadership. *Journal of Applied Psychology, 68*, 678-685.
- Kesner, I. F., & Sebora, T. C. (1994). Executive succession: Past, present, and future. *Journal of Management, 20*, 327-372.
- Khan, A. M., & Manopichetwattana, V. (1989). Innovative and noninnovative small firms: Types and characteristics. *Management Science, 35*, 597-606.
- Kiesler, S., & Sproull, L. (1982). Managerial response to changing environments: Perspectives on problem sensing from social cognition. *Administrative Science Quarterly, 27*, 548-570.
- Kimmel, M. J. (1981). *Senior leadership: An annotated bibliography of the military and nonmilitary literature*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Kirchoff, B. A. (1977). Organizational effectiveness measurement and policy research. *Academy of Management Review, 2*, 346-355.
- Kirkpatrick, D. L. (1959). Techniques for evaluating training programs. *Journal of the American Society of Training Directors, 13*, 3-9, 21-26.
- Knowlton, W., & McGee, M. (1994). *Strategic leadership and personality: Making the MBTI relevant*. Washington, DC: National Defense University Industrial College of the Armed Forces.
- Kogan, N., & Wallach, M. A. (1964). *Risk taking: A study in cognition and personality*. New York: Holt, Rinehardt & Winston.

- Korsgaard, M. A., Schweiger, D. M., & Sapienza, H. J. (1995). Building commitment, attachment, and trust in strategic decision-making teams: The role of procedural justice. *Academy of Management Journal, 38*, 60-84.
- Kotter, J. P. (1982a). *The general managers*. New York: Free Press.
- Kotter, J. P. (1982b). What effective general managers really do. *Harvard Business Review, 60*(6), 156-167.
- Kotter, J. P. (1990). *A force for change: How leadership differs from management*. New York: Free Press.
- Kouzes, J. M., & Posner, B. Z. (1987). *The leadership challenge: How to get extraordinary things done in organizations*. San Francisco, CA: Jossey-Bass.
- Kraut, A. I., Pedigo, P. R., McKenna, D. D., & Dunnette, M. D. (1989). The role of the manager: What's really important in different management jobs. *Academy of Management Executive, 3*, 286-293.
- Kretch, D., & Crutchfield, R. S. (1948). *Theory and problems of social psychology*. New York: McGraw-Hill.
- Kurke, L. B., & Aldrich, H. E. (1983). Mintzberg was right!: A replication and extension of The nature of managerial work. *Management Science, 29*, 975-984.
- Larwood, L., Falbe, C. M., Kriger, M. P., & Miesing, P. (1995). Structure and meaning of organizational vision. *Academy of Management Journal, 38*, 740-769.
- Laskey, K. B., Leddo, J. M., & Bresnick, T. A. (1990). *Executive thinking and decision skills: A characterization and implications for training* (ARI Research Note 91-07). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A230 218)
- Lau, A. W., Newman, A. R., & Broedling, L. A. (1980). The nature of managerial work in the public sector. *Public Administration Review, 40*, 513-520.
- Lawrence, P., & Lorsch, J. (1967). *Organization and environment*. Boston, MA: Harvard Business School Division of Research.

- Lefebvre, E., & Lefebvre, L. A. (1992). Firm innovativeness and CEO characteristics in small manufacturing firms. *Journal of Engineering & Technology Management*, 9, 243-277.
- Leidecker, J. K., Bruno, A. V., & Yanow, A. (1988). A delicate balance: The two functions of the CEO. *Management Review*, 18-22.
- Levinson, H. & Rosenthal, S. (1984). *CEO: Corporate leadership in action*. New York: Basic Books.
- Lewicki, R. J., & Sheppard, B. H. (1985). Choosing how to intervene: Factors affecting the use of process and outcome control in third party dispute resolution. *Journal of Occupational Behavior*, 6, 49-64.
- Lewis, P. M. (1993). *Career path appreciation (CPA) data reduction and analysis* (ARI Technical Report 983). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A273 225)
- Lewis, P. M. (1995). *Conceptual capacity and officer effectiveness*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Lewis, P. M., & Jacobs, T. O. (1992). Individual differences in strategic leadership capacity: A constructive/development view. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational perspective* (pp. 121-137). Westport, CT: Quorum Books.
- Lieberson, S., & O'Connor, J. F. (1972). Leadership and organizational performance: A study of large corporations. *American Sociological Review*, 37, 117-130.
- Locke, E. A., & Latham, G. (1990). *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice-Hall.
- Lombardo, M. M., & McCauley, C. D. (1988). *The dynamics of managerial derailment* (Tech. Rep. No. 34). Greensboro, NC: Center for Creative Leadership.

- Lombardo, M. M., Ruderman, M. N., & McCauley, C. D. (1987). *Explanations of success and derailment in upper-level management positions*. Paper, Academy of Management, New York.
- Lord, R. G., & Maher, K. J. (1993). *Leadership and information processing: Linking perceptions and performance*. London: Routledge.
- Lowe, K. B., Kroek, K. G., & Sivasubramaniam (1995, May). *Effectiveness correlates of transformational and transactional leadership: A meta-analytic review*. Paper presented at the 10th annual meeting of the Society for Industrial and Organizational Psychology, Orlando, FL.
- Lubatkin, M. H., Chung, K. H., Rogers, R. C., & Owers, J. E. (1989). Stockholder reactions to CEO changes in large corporations. *Academy of Management Journal*, 32, 47-68.
- Lucas, K. W., Harris, P., & Stewart, S. R. (1988). *Training technology for the operational level of war* (ARI Research Report No. 1505). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A213 219)
- Lucas, K. W., & Markessini, J. (1993). *Senior leadership in a changing world order: Requisite skills for U.S. Army one- and two-star generals* (ARI Tech. Rep. No. 976). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Luthans, F. (1988). Successful vs. effective real managers. *Academy of Management Executive*, 2, 127-132.
- Luthans, F., & Lockwood, D. L. (1984). Toward an observation system for measuring leader behavior in natural settings. In J. G. Hunt, D. Hosking, C. A. Schriesheim, & R. Stewart (Eds.), *Leaders and managers: International perspectives on managerial behavior and leadership*. New York: Pergamon Press.

- Luthans, F., Rosenkrantz, S. A., & Hennessey, H. W. (1985). What do successful managers really do? An observational study of managerial activities. *Journal of Applied Behavioral Science*, 21, 255-270.
- Maggiotto, M. A., & McKenna, F., Jr. (1992). Assessing productivity and management in local government. *Public Productivity & Management Review*, 15, 309-313.
- Mahoney, T. A., Jerdee, T. H., & Carroll, S. I. (1965). The job(s) of management. *Industrial Relations*, 4, 97-110.
- Mahoney, T. A., & Weitzel, W. (1969). Managerial models of organizational effectiveness. *Administrative Science Quarterly*, 18, 77-88.
- Mann, F. C. (1965). Toward an understanding of the leadership role in formal organization. In R. Dubin, G. C. Homans, F. C. Mann, & D. C. Miller (Eds.), *Leadership and productivity*. San Francisco, CA: Chandler.
- Maranell, G. M. (1970). The evaluation of presidents: An extension of the job Schiesinger polls. *Journal of American History*, 57, 104-113.
- March, J. G., & Simon, H. A. (1958). *Organizations*. New York: Wiley.
- Markessini, J. (1991). *Executive leadership in a changing world order: Requisite cognitive skills. A taxonomy of cognitive capabilities for executives*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Markessini, J., Lucas, K. W., Chandler, & Jacobs, T. O. (1994). *Executive leadership: Requisite skills and developmental processes for the U.S. Army's civilian executives* (ARI Research Note 94-26). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A284 127)
- Maslow, A. (1954). *Motivation and personality*. New York: Harper.

- McCall, M. W., & Lombardo, M. M. (1983). *Off the track: Why and how successful executives get derailed*. Greensboro, NC: Center for Creative Leadership.
- McCall, M. W., & Segrist, C. A. (1980). *In pursuit of the manager's job: Building on Mintzberg* (Tech. Rep. No. 14) Greensboro, NC: Center for Creative Leadership.
- McCauley, C. D., Eastman, L. J., & Ohlott, P. J. (1995). Linking management selection and development through stretch assignments. *Human Resource Management*, 34, 93-115.
- McCauley, C. D., Ruderman, M. N., Ohlott, P. J., & Morrow, J. E. (1994). Assessing the developmental components of managerial jobs. *Journal of Applied Psychology*, 79, 46-67.
- McCaulley, M. H. (1990). The Myers-Briggs type indicator and leadership. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership* (pp. 381-418). West Orange, NJ: Leadership Library of America, Inc.
- McClelland, D. C. (1961). *The achieving society*. Princeton, NJ: Van Nostrand.
- McClelland, D. C. (1985). *Human motivation*. Chicago: Scott, Foresman.
- McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52, 81-90.
- McCrae, R. R., & Costa, P. T. (1991). Adding Liebe und Arbeit: The full five-factor model and well-being. *Personality and Social Psychology Bulletin*, 17, 227-232.
- McGee, M. (April 23, 1996). Personal communication.
- McIntyre, R. M., Jordan, P., Mergen, C., Hamill, L., & Jacobs, T. O. (1993). *The construct validity of the CPA: Report on three investigations* (ARI Rep. No. TCN 92-017). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

- Meindl, J. R. (1990). On leadership: An alternative to the conventional wisdom. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 12) (pp. 159-203). Greenwich, CT: JAI Press.
- Meindl, J. R., & Ehrlich, S. B. (1987). The romance of leadership and the evaluation of organizational performance. *Academy of Management Journal*, 30, 91-109.
- Meindl, J. R., & Erlich, S. B., & Dukerich, J. M. (1985). The romance of leadership. *Administrative Science Quarterly*, 30, 78-102.
- Merton, R. K. (1957). *Social theory and social structure*. Glencoe, IL: Free Press.
- Merz, G. R., & Sauber, M. H. (1995). Profiles of managerial activities in small firms. *Strategic Management Journal*, 16, 551-564.
- Meyer, A. (1982). Adapting to environmental jolts. *Administrative Science Quarterly*, 27, 515-538.
- Miles, R. E., & Snow, C. C. (1978). *Organizational strategy, structure, and process*. New York: McGraw Hill.
- Miller, C. C., & Cardinal, L. B. (1994). Strategic planning and firm performance: A synthesis of more than two decades of research. *Academy of Management*, 37, 1649-1665.
- Miller, C. C., & Frieson, P. H. (1984). *Organizations: A quantum view*. Englewood Cliffs, NJ: Prentice Hall.
- Miller, D. (1991). Stale in the saddle: CEO tenure and the match between the organization and environment. *Management Science*, 37, 34-52
- Miller, D. (1993). Some organizational consequences of CEO succession. *Academy of Management Journal*, 36, 644-659.
- Miller, D., Kets de Vries, M. F., & Toulouse, J. M. (1982). Top executive locus of control and its relationship to strategy-making, structure, and environment. *Academy of Management Journal*, 25, 237-253.

Miller, D., & Toulouse, J. M. (1986). Chief executive personality and corporate strategy and structure in small firms. *Management Science*, 32, 1389-1409.

Milliken, F. (1990). Perceiving and interpreting environmental change: An examination of college administrators' interpretation of changing demographics. *Academy of Management Journal*, 33, 42-63.

Mintzberg, H. (1973). *The nature of managerial work*. New York: Harper & Row.

Mintzberg, H. (1975). The manager's job: Folklore and fact. *Harvard Business Review*, 53, 49-61.

Mintzberg, H. (1987). Crafting strategy. *Harvard Business Review*, July-August, 66-75.

Mintzberg, H. (1990). The design school: Reconsidering the basic premises of strategic management. *Strategic Management Journal*, 11, 171-195.

Mintzberg, H. (1994). *The rise and fall of strategic planning*. New York: Free Press.

Morgan, B. B., Jr., Glickman, A. S., Woodard, E. A., Blaiwes, A., & Salas, E. (1986). *Measurement of team behaviors in a Navy environment* (NTSC Technical Report No. 86-014). Orlando, FL: Naval Training Systems Center.

Morrow, P. C. (1981). Environmental uncertainty and subunit effectiveness: A second look at the information processing approach to subunit communication. *Academy of Management Journal*, 24, 851-858.

Morse, J. J., & Wagner, F. R. (1978). Measuring the process of managerial effectiveness. *Academy of Management Journal*, 21, 23-35.

Mumford, M. D. (1986). Leadership in the organizational context: Conceptual approach and its application. *Journal of Applied Social Psychology*, 16, 212-226.

- Mumford, M. D., Baughman, W. A., Supinski, E. P., Costanza, D. P., & Threlfall, K. V. (1993). *Cognitive and metacognitive skill development: Alternative measures for predicting leadership potential* (ARI Tech Rep. MRI 93-2 for U.S. Army Research Institute for Behavioral and Social Sciences). Bethesda, MD: Management Research Institute.
- Mumford, M. D., Baughman, W. A., Uhlman, C. E., Costanza, D. P., & Threlfall, K. V. (1993). Personality variables and skill acquisition: Performance at different stages of practice on a complex task. *Human Performance*, 6, 345-381.
- Mumford, M. D., Baughman, W. A., Threllfall, K. V., Costanza, D. P., & Uhlman, C. E. (1993). Personality, adaptability, and performance: Performance on well-defined and ill-defined problem-solving tasks. *Human Performance*, 6, 245-285.
- Mumford, M. D., & Connolly, M. S. (1991). Leaders as creators: leader performance and problem solving in ill-defined domains. *Leadership Quarterly*, 2, 289-316.
- Mumford, M. D., Costanza, D. P., Baughman, W. A., Threlfall, K. V., & Fleishman, E. A. (1994). The influence of abilities on performance during practice: Effects of massed and distributed practice. *Journal of Educational Psychology*, 86, 1-11.
- Mumford, M. D., & Marks, M. (1994). Leader development. In M. D. Mumford, S. J. Zaccaro, E. A. Fleishman & F. D. Harding (Eds.), *The thinking leader: Developing leaders for a more complex world*. Bethesda, MD: Management Research Institute.
- Mumford, M. D., Yarkin-Levin, K., Korotkin, A. L., Wallis, M. R., & Marshall-Mies, J. (1986). *Characteristics relevant to performance as an army leader: Knowledges, skills, abilities, other characteristics and generic skills* (ARI Research Note 86-24). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A169 765)

- Mumford, M. D., Zaccaro, S. J., Harding, F. D., Fleishman, E. A., & Reiter-Palmon, R. (1993). *Cognitive and temperament predictors of executive ability: Principles for developing leadership capacity* (ARI Technical Report 977). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A267 589)
- Murray, A. I. (1989). Top management group heterogeneity and firm performance. *Strategic Management Journal*, 10, 125-141.
- Murray, R. K., & Blessing, T. H. (1983). The presidential performance study: A progress report. *Journal of American History*, 70, 535-555.
- Myers, I. B., & McCaulley, M. H. (1985). *Manual: A guide to the development and use of the Myers-Briggs Type Indicator*. Palo Alto, CA: Consulting Psychologists Press.
- Nagle, B. F. (1954). Productivity, employee attitude, and supervisor sensitivity. *Personnel Psychology*, 7, 219-232.
- Nanus, B. (1992). *Visionary leadership*. San Francisco, CA: Jossey-Bass.
- Newell, A., & Simon, H. A. (1972). *Human problem solving*. Englewood Cliffs, NJ: Prentice Hall.
- Norburn, D. (1986). GOGO's, YOYO's, and DODO's: Company directors and industry performance. *Strategic Management Journal*, 7, 101-117.
- O'Reilly, C. A. III, Synder, R. C., & Boothe, J. N. (1993). Executive team demography and organizational change. In G. P. Huber & W. H. Glick (Eds.), *Organizational change and redesign: Ideas and insights for improving performance* (pp. 147-175). New York: Oxford.
- Page, R. C., & Tornow, W. W. (1987). *Managerial job analysis: Are we further along?* Paper, Society for Industrial Organizational Psychology, Atlanta, GA.
- Paolillo, J. G. (1981). Managers' self-assessments of managerial roles: The influence of hierarchical level. *Journal of Management*, 7, 43-52.

- Paulus, D. L., & Martin, C. L. (1988). Functional flexibility: A new conception. *Journal of Personality and Social Psychology, 55*, 88-101.
- Pavett, C. M., & Lau, A. W. (1983). Managerial work: The influence of hierarchical level and functional specialty. *Academy of Management Journal, 26*, 170-177.
- Pearce, J. A. II. (1981). An executive-level perspective on the strategic management process. *California Management Review, 24*, 39-48.
- Pearce, J. A. II, Freeman, E. B., & Robinson, R. B. III. (1987). The tenuous link between formal strategic planning and financial performance. *Academy of Management Review, 12*, 658-675.
- Pearce, J. A. II, Robbins, D. K., & Robinson, R. B., Jr. (1987). The impact of grand strategy and planning formality on financial performance. *Strategic Management Journal, 8*, 125-134.
- Pearce, J. A., II, & Robinson, R. B. (1995). *Strategic management: Formulation, implementation, and control*. Chicago: Irwin.
- Pence, E. C., Welp, R. L., & Stenstrom, D. J. (1990). *A measurement concept for assessing corps performance* (ARI Research Note 90-138). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A228 275)
- Peters, T. J., & Waterman, R. H. (1982). *In search of excellence*. New York: Harper & Row.
- Pfeffer, J. (1977). The ambiguity of leadership. *Academy of Management Review, 2*, 104-112.
- Pfeffer, J. (1981). *Power in organizations*. Boston: Pitman
- Pfeffer, J., & Salancik G. R. (1978). *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.
- Phillips, R. L., & Hunt, J. G. (1992). *Strategic leadership: A multi-organizational perspective*. Westport, CT: Quorum Books.

- Pinchot, J., III (1985). *Intrapreneuring*. New York: Harper & Row.
- Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990). Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly*, 1, 107-142.
- Price, J. L. (1972). *Handbook of organizational measurement*. Lexington, MA: D.C. Heath.
- Priem, R. L. (1990). Top management team group factors, consensus, and firm performance. *Strategic Management Journal*, 11, 469-478.
- Quinn, J. B. (1980). Formulating strategy one step at a time. *Journal of Business Strategy*, 1, 42-63.
- Quinn, R. E. (1984). Applying the competing values approach to leadership: Towards an integrative framework. In J. G. Hunt, D. Hosking, C. A. Schriesheim, & R. Stewart (Eds.), *Leaders and managers: International perspectives on managerial behavior and leadership*. New York: Pergamon.
- Quinn, R. E. (1988). *Beyond rational management: Mastering paradoxes and competing demands of high performance*. San Francisco, CA: Jossey Bass.
- Quinn, R. E., Faerman, S. R., & Dixit, N. (1987). *Perceived performance: Some archetypes of managerial effectiveness and ineffectiveness*. Working paper, Institute for Government and Policy Studies, Department of Public Administration, State University of New York at Albany.
- Quinn, R. E., Faerman, S. R., Thompson, M. P., & McGrath, M. R. (1990). *Becoming a master manager*. New York: Wiley.
- Quinn, R. E., & Rohrbaugh, J. (1981). A competing values approach to organizational effectiveness. *Public Productivity Review*, 5, 122-140.
- Quinn, R. E., Spreitzer, G. M., & Hart, S. (1991). Challenging the assumptions of bipolarity: Interpenetration and managerial effectiveness. In S. Srivastva & R. Fry (Eds.), *Executive continuity*. San Francisco, CA: Jossey-Bass.

- Rajagopalan, N., Rasheed, A. M. A., & Datta, D. K. (1993). Strategic decision processes: Critical review and future directions. *Journal of Management*, 19, 349-384.
- Reynierse, J. H. (1991). The psychological types of outplaced executives. *Journal of Psychological Type*, 22, 27-32.
- Rigby, C. K., & Harris, P. (1987). *Program management offices: Structural modeling through applications of stratified systems theory* (ARI Technical Report No. 736). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Ringle, P. M., & Savickas, M. L. (1983). Administrative leadership: Planning and time perspective. *Journal of Higher Education*, 54, 649-661.
- Ritchie, R. J. (1994). Using the assessment center method to predict senior management potential. Special issue: Issues in the assessment of managerial and executive leadership. *Consulting Psychology Journal: Practice and Research*, 46, 16-23.
- Roach, B. (1986). Organizational decision-makers: Different types for different levels. *Journal of Psychological Type*, 12, 16-24.
- Rohrbaugh, J. (1981). Operationalizing the competing values approach: Measuring performance in the employment service. *Public Productivity Review*, 5, 141-159.
- Romanelli, E., & Tushman, M. L. (1988). Executive leadership and organizational outcomes: An evolutionary perspective. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers* (pp. 129-140). Greenwich, CT: JAI Press.
- Ross, S. M., & Offermann, L. R. (1991). *Transformational leaders: Measurement of personality attributes and work group performance*. Paper presented at the 2nd annual meeting of the Society for Industrial and Organizational Psychology, St. Louis, MO.

- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 90, No. 609.
- Rueb, J. D., & Foti, R. J. (1990, April). *Traits, self-monitoring and leadership emergence*. Paper presented at the Fifth Annual Conference of the Society for Industrial and Organizational Psychology, Miami, FL.
- Rumelt, R. (1982). Diversification strategy and performance. *Strategic Management Journal*, 3, 359-369.
- Rusmore, J. T. (1984). *Executive performance and intellectual ability in organizational levels*. San Jose, CA: San Jose State University, Advanced Human Systems Institution.
- Rusmore, J. T., & Baker, H. (1987). *Executive performance in four organizational levels and two kinds of intellectual ability*. Paper, Society for Industrial and Organizational Psychology, Atlanta, GA.
- Salancik, G. R., & Pfeffer, J. (1977). Constraints on administrator discretion: The limited influence of mayors on city budgets. *Urban Affairs Quarterly*, 12, 475-498.
- Salas, E., Dickinson, T., Converse, S. A., & Tannenbaum, S. I. (1992). Toward an understanding of team performance and training. In R. W. Swezey & E. Salas (Eds.), *Teams: Their training and performance* (pp. 3-29). Norwood, NJ: ABLEX.
- Sashkin, M. (1986). True vision in leadership. *Training and Development Journal*, 40, 58-61.
- Sashkin, M. (1988). The visionary leader. In J. A. Conger, & R. N. Kanungo (Eds.), *Charismatic leadership: The elusive factor in organizational effectiveness* (pp. 122-160). San Francisco, CA: Jossey-Bass.
- Sashkin, M. (1992). Strategic leadership competencies. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational perspective*. Westport, CT: Quorum Books.

- Sashkin, M., & Fulmer, R. M. (1988). Toward an organizational leadership theory. In J. G. Hunt, B. R. Baliga, H. P. Dachler, & C. A. Schriesheim (Eds.), *Emerging leadership vistas*. Lexington, MA: Lexington Books.
- Savell, J. M., Tremble, T. R., Jr., & Teague, R. C. (1993). *Some lessons learned about leadership in operation desert storm/shield* (ARI Study Report No. 93-05). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A268 947)
- Sawyerr, O. O. (1993). Environmental uncertainty and environmental scanning activities of Nigerian manufacturing executives: A comparative analysis. *Strategic Management Journal*, 14, 287-299.
- Schein, E. H. (1992). *Organizational culture and leadership* (2nd ed.). San Francisco, CA: Jossey-Bass.
- Schneir, C. E. (1979). Measuring cognitive complexity: Developing reliability, validity, and norm tables for a personality instrument. *Educational and Psychological Measurement*, 39, 599-612.
- Schreyogg, G., & Steinmann, H. (1987). Strategic control: A new perspective. *Academy of Management Review*, 12, 91-103.
- Schroder, H. M., Driver, M. J., & Streufert, S. (1967). *Human information processing*. New York: Holt, Rinehart & Winston.
- Schroder, H. M., & Streufert, S. (1962). *The measurement of four systems of personality structure varying in level of abstractness: Sentence completion method* (ONR Tech. Rep. No. 11). Princeton, NJ: Princeton University.
- Schwenk, C. R. (1984). Cognitive simplification processes in strategic decision-making. *Strategic Management Journal*, 5, 111-128.

Seashore, S. E., Cammann, C., Fichman, M., Ford, L., Ross, G., & Rousseau (1982). *Organizational effectiveness: Development and validation of integrated models. Report I: Development of an integrated multivariate model of organizational effectiveness*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Seashore, S. E., Fichman, M., Fakhouri, J., Ford, L., Rousseau, & Sutton, R. I. (1982). *Organizational effectiveness: Development and validation of integrated models. Report II: Empirical studies of organizational effectiveness using multivariate models* (ARI RN 83-24). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Sebrechts, M. M., Bennett, R. E., & Rock, D. A. (1991). Agreement between expert-system and human raters' scores on complex constructed-resonse quantitative items. *Journal of Applied Psychology*, 76, 856-862.

Seltzer, J. & Bass, B. M. (1990). Transformational leadership: Beyond initiation and consideration. *Journal of Management*, 16, 693-703.

Selznick, P. (1957). *Leadership in administration: A sociological interpretation*. Evanston, IL: Row, Peterson.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.

Shamir, B., House, R. J., & Arthur, M. (1993). The motivational effects of charismatic leadership: A self-concept based theory. *Organization Science*, 4, 577-594.

Shartle, C. L., Stogdill, R. M., & Campbell, D. T. (1949). *Studies in naval leadership*. Columbus, OH: Ohio State University, Bureau of Business Research.

Shrader, C. B., Taylor, L., & Dalton, D. R. (1984). Strategic planning and organizational performance: A critical appraisal. *Journal of Management*, 10, 149-171.

Simon, H. A. (1957). *Models of man*. New York: Wiley.

- Simonton, D. K. (1988). Presidential style: Personality, biography, and performance. *Journal of Personality and Social Psychology, 55*, 928-936.
- Smith, B. J. (1982). *An initial test of a theory of charismatic leadership based on the responses of subordinates*. Unpublished doctoral dissertation, University of Toronto, Toronto.
- Smith, J. E., Carson, K. P., & Alexander, R. A. (1984). Leadership: It can make a difference. *Academy of Management Journal, 27*, 765-776.
- Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., O'Bannon, B. P., & Scully, J. A. (1994). Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly, 39*(3), 412-438.
- Smith, N. D. (1988). *Exploratory examination of procedures for improving lieutenant leadership development* (ARI Research Report No. 1480). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Snow, R. E. (1993). Construct validity and constructed-response tests. In R. E. Bennett & W. C. Ward (Eds.), *Construction versus choice in cognitive measurement* (pp.45-60). Hillsdale, NJ: Lawrence Erlbaum.
- Snyder, M. (1974). The self-monitoring of expressive behavior. *Journal of Personality and Social Psychology, 30*, 526-537.
- Snyder, M. (1979). Self-monitoring processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology, 12*, 86-128. New York: Academic Press.
- Stahl, M. J. (1983). Achievement, power and managerial motivation: Selecting managerial talent with the job choice exercise. *Personnel Psychology, 36*, 775-789.
- Stamp, G. P. (1986). Some observations on the career paths of women. *Journal of Applied Behavioral Science, 22*, 385-396.

- Stamp, G. P. (1988). *Longitudinal research into methods of assessing managerial potential* (ARI Technical Report No. 819). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A190 628)
- Starbuck, W. H. (1983). Organizations as action generators. *American Sociological Review*, 48, 91-102.
- Starbuck, W. H., & Milliken, F. J. (1988). Executives perceptual filters: What they notice and how they make sense. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers*. Greenwich, CT: JAI Press.
- Steinberg, A. G., & Leaman, J. A. (1990a). *Dimensions of Army commissioned and noncommissioned officer leadership* (ARI Technical Report No. 879). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. AD A224 933)
- Steinberg, A. G., & Leaman, J. A. (1990b). *The army leader requirements tasks analysis: Commissioned officer results* (ARI Technical Report No. 898). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A226 543)
- Steiner, I. D. (1972). *Group process and productivity*. San Diego, CA: Academic Press.
- Sternberg, R. J. (1985). Implicit theories of intelligence, creativity, and wisdom. *Journal of Personality and Social Psychology*, 49, 606-627.
- Sternberg, R. J. (1988). A three-faceted model of creativity. In R. J. Sternberg (Ed.), *The nature of creativity: Contemporary psychological perspectives* (pp. 125-147). Cambridge, MA: Cambridge University Press.
- Sternberg, R. J. (1994). Experimental approaches to human intelligence. *European Journal of Psychological Assessment*, 10, 153-161.
- Stewart, R. (1967). *Managers and their jobs: A study of the similarities and differences in the way managers spend their time*. London: Macmillan.

- Stewart, S. R. (1992). *Leader development training needs assessment of U.S. Army battalion commanders* (ARI Technical Report 969). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A259 204)
- Stewart, S. R. (1994). Strategic leader competencies/ Senior service college experiences. *Strategic Leadership Conference Proceedings*. Carlisle Barricks, PA: U.S. Army War College.
- Stewart, S. R., & Angle, D. C. (1992). *Correlates of creative problem solving* (ARI Research Note 93-01). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A258 720)
- Stewart, S. R., & Hicks, J. M. (1987). *Leader development training assessment of U.S. Army Training and Doctrine Command (TRADOC) brigadier commanders* (ARI Research Report No. 1454). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A190 628)
- Stewart, S. R., Kilcullen, R., & Hopkins, J. E. (1993). *Strategic Leader Development Inventory (SLDI)*. Paper presented at the annual meeting of the Military Testing Association, Williamsburg, VA.
- Stogdill, R. M. (1948). Personal factors associated with leadership: A survey of the literature. *Journal of Psychology*, 25, 35-71.
- Stogdill, R. M. (1963). *Manual for the Leader Behavior Description Questionnaire Form-XII*. Columbus, OH: Ohio State University, Bureau of Business Research.
- Stogdill, R. M. (1974). *Handbook of leadership: A survey of the literature*. New York: Free Press.
- Stogdill, R. M., & Shartle, C. L. (1955). *Methods in the study of administrative leadership*. Columbus, OH: Ohio State University, Bureau of Business Research.
- Stogdill, R. M., Shartle, C. L., Wherry, R. J., & Jaynes, W. E. (1955). A factorial study of administrative behavior. *Personnel Psychology*, 8, 165-180.

- Streufert, S. (1983). The stress of excellence. *Across the Board*, 20, 8-11.
- Streufert, S. (1984). The dilemma of excellence: How strategic decision making can kill you. *International Management*, 39, 36-40.
- Streufert, S., & Driver, M. J. (1967). Impression formation as a measure of the complexity of conceptual structure. *Education and Psychological Measurement*, 27, 1025-1039.
- Streufert, S., & Nogami, G. (1989). Cognitive style and complexity: Implications for I/O psychology. In C. L. Cooper & I. Robertson (Eds.), *International review of industrial and organizational psychology* (pp. 93-143). Chichester, UK: Wiley.
- Streufert, S., Nogami, G., Swezey, R. W., Pogash, R. M., & Piasecki (1988). Computer assisted training on complex managerial performance. Special issue: Dialogue on the relationship of learning theory to instructional theory. *Computers in Human Behavior*, 4, 77-88.
- Streufert, S., & Streufert, S. C. (1978). *Behavior in the complex environment*. New York: John Wiley.
- Streufert, S., Streufert, S. C., & Castore, C. H. (1968). Leadership in negotiations and the complexity of conceptual structure. *Journal of Applied Psychology*, 52, 218-223.
- Streufert, S., & Swezey, R. W. (1986). *Complexity, managers, and organizations*. Orlando, FL: Academic Press.
- Stumpf, S. A. (1989). Work experiences that stretch managers' capacities for strategic thinking. *Journal of Management Development*, 8, 31-39.
- Suedfeld, P., Corteen, R. S., & McCormick, C. (1986). The role of integrative complexity in military leadership: Robert E. Lee and his opponents. Special Issue: Applications of social psychology to military issues. *Journal of Applied Social Psychology*, 16, 498-507.

- Suedfeld, P., & Rank, A. D. (1976). Revolutionary leaders: Long-term successs as a function of changes in conceptual complexity. *Journal of Personality and Social Psychology, 34*, 169-178.
- Sutcliffe, K. M. (1994). What executives notice: Accurate perceptions in top management teams. *Academy of Management Journal, 5*, 1360-1378.
- Swezey, R. W., Streufert, S., & Mietus, J. (1983). Development of an empirically derived taxonomy of organizational systems. *Journal of the Washington Academy of Sciences, 73*, 27-42.
- Swezey, R. W., Streufert, S., Criswell, E. L., Unger, K. W., & van Rijn, P. (1984). *Development of a computer simulation for assessing decision-making style using cognitive complexity theory* (SAI Report No. SAI84-04-178). McLean, VA: Science Applications, Inc.
- Sypher, & Sypher (1982). Perceptions of communication ability: Self monitoring in an organizational setting. *Personality and Social Psychology Bulletin, 9*, 297-304.
- Szilagyi, A. D., Jr., & Schweiger, D. M. (1984). Matching managers to strategies: A review and suggested framework. *Academy of Management Review, 9*, 626-637.
- Taylor, R. (1975). Age and experience as determinants of managerial information processing and decision making performance. *Academy of Management Journal, 18*, 74-81.
- Thomas, J. B., Clark, S. B., & Gioia, D. A. (1993). Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action and outcomes. *Academy of Management Journal, 36*, 239-270.
- Thomas, J. B., & McDaniel, R. R., Jr. (1990). Interpreting strategic issues: Effects of strategy and the information processing structure of top management teams. *Academy of Management Journal, 33*, 286-306.

- Thomas, J. B., Shankster, L. J., & Mathieu, J. E. (1994). Antecedents to organizational issue interpretation: The roles of single-level, cross-level, and content cues. *Academy of Management, 37*, 1252-1284.
- Thomas, K. W. (1992). Conflict and negotiation processes in organizations. In M. D. Dunnette & L. M. Hough (Eds.). *Handbook of industrial and organizational psychology* (Vol. 3) (pp. 651-717). Palo Alto, CA: Consulting Psychologists Press.
- Thomas, K. W., & Schmidt, W. H. (1976). A survey of managerial interests with respect to conflict. *Academy of Management Journal, 19*, 315-318.
- Thomas, P., & Greenberger, D. B. (1995). The relationship between leadership and time orientation. *Journal of Management Inquiry, 4*, 272-292.
- Thompson, J. D. (1967). *Organizations in action*. New York: McGraw-Hill.
- Thune, S. S., & House, R. J. (1970). Where long-range planning pays off—Findings of a survey of formal and informal planners. *Business Horizons, 13*, 81-87.
- Thurstone, T. G., & Mellinger, J. J. (1957/1985). *Cree Questionnaire*. Park Ridge, IL: London House.
- Tichy, N., & Devanna, M. A. (1986a/1990). The transformational leader. *Training and Development Journal, 40*, 27-32.
- Tichy, N., & Devanna, M. A. (1986b). *Transformational leadership*. New York: Wiley.
- Tichy, N., & Ulrich, D. O. (1984). SMR forum: The leadership challenge—A call for the transformational leader. *Sloan Management Review, 26*(1), 59-68.
- Tornow, W. W., & Pinto, P. R. (1976). The development of a managerial job taxonomy: A system for describing, classifying, and evaluating executive positions. *Journal of Applied Psychology, 61*, 410-418.

- Trapp, E. P. (1955). Leadership and popularity as a function of behavioral predictions. *Journal of Abnormal and Social Psychology*, 51, 452-457.
- Tremble, T. R., Jr. (1992). *Relationships of leadership competence with leader and unit performance effectiveness* (ARI Research Report No. 1625). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A257 240)
- Tremble, T. R., Jr., & Alderks, C. E. (1991). *Measures for research on small unit preparedness for combat effectiveness* (ARI Research Note 92-03). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A242 717)
- Trice, H. M., & Beyer, J. M. (1986). Charisma and its routinization in two social movement organizations. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 113-164). Greenwich, CT: JAI Press
- Tsui, A. S. (1984a). A role set analysis of managerial reputation. *Organizational Behavior and Human Performance*, 34, 64-96.
- Tsui, A. S. (1984b). A multiple constituency framework of managerial reputational effectiveness. In J. G. Hunt, D. Hosking, C. Schriesheim, & R. Stewart (Eds.), *Leaders and managers: International perspectives on managerial behavior and leadership* (pp. 28-44). New York: Pergamon Press.
- Tuggle, F. D., & Gerwin, D. (1980). An information processing model of organizational perception, strategy and choice. *Management Science*, 26, 575-592.
- Twohig, P. T., Rachford, D. L., Savell, J. M., & Rigby, C. K. (1987). *Implementation of a cognitive skills training program in ROTC: The leadership enrichment program* (ARI Research Report No. 1436). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

- Twohig, P. T., & Tremble, T. R., Jr. (1991). *Leadership performance in a tactical environment* (ARI Research Report No. 1580). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A232 792)
- Twohig, P. T., & Tremble, T. R., Jr. (1987). Methodological issues in measuring leader performance. Proceedings of the 29th Annual Conference of the Military Testing Association, 130-135.
- U.S. Army. (1987). Department of the Army Pamphlet 600-80, *Executive Leadership*. Washington, DC: HQDA.
- U.S. Army. (1987). *Leadership and command at senior levels* (FM 22-103). Washington, DC: U.S. Department of the Army.
- U.S. Army. (1993). Field Manual 22-103, *Leadership at senior and strategic levels*. Working draft. Carlisle Barracks, PA: U.S. Army War College.
- U.S. Army War College (1994). *Strategic leadership conference: Proceedings*. Carlisle Barracks, PA: U.S. Army War College.
- Van Zelst, R. H. (1952). Empathy test scores of union leaders. *Journal of Applied Psychology*, 36, 293-295.
- Virany, B., Tushman, M., & Romanelli, E. (1985). Executive succession and organizational outcomes in turbulent environments: An organizational learning approach. *Organization Science*, 3, 72-91.
- Waldman, D. A., Bass, B. M., & Einstein, W. E. (1987). Leadership and outcomes of the performance appraisal process. *Journal of Occupational Psychology*, 60, 177-186.
- Waldman, D. A., Bass, B. M., & Yammarino, F. J. (1990). Adding to contingent-reward behavior: The augmenting effect of charismatic leadership. *Group and Organization Studies*, 15, 381-394.
- Ward, W. C., Friedericksen, N., & Carlson, S. B. (1980). Construct validity of free-response and machine-scorable forms of a test. *Journal of Educational Measurement*, 17, 11-29.

- Walsh, J. P., & Fahey, L. (1986). The role of negotiated belief structures in strategy making. *Journal of Management*, 12, 325-338.
- Weber, M. (1947). *The theory of social and economic organization* (T. Parsons, Trans.). New York: Free Press.
- Weick, K. E. (1979). *The social psychology of organizations* (2nd ed.). Reading, MA: Addison-Wesley.
- Weiner, N., & Mahoney, T. A. (1981). A model of corporate performance as a function of environmental, organizational, and leadership influences. *Academy of Management Journal*, 24, 453-470.
- Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, 35(1), 91-121.
- Westley, F., & Mintzberg, H. (1989). Visionary leadership and strategic management. *Strategic Management Journal*, 10, 17-32.
- Williams, L. K. (1965). Some correlates of risk taking. *Personnel Psychology*, 18, 297-310.
- Winter, D. G. (1987). Leader appeal, leader performance, and the motives profile of leaders and followers: A study of American presidents and elections. *Journal of Personality and Social Psychology*, 52, 96-102.
- Wood, R., & Bandura, A. (1989). Social cognitive theory of organizational management. *Academy of Management Review*, 14, 361-384.
- Woolridge, S. W., & Floyd, B. (1990). The strategy process, middle management involvement, and organizational performance. *Strategic Management Journal*, 11, 231-241.
- Wortman, M. S. (1982). Strategic management and changing leader-follower roles. *Journal of Applied Behavioral Science*, 18, 371-383.

- Yammarino, F. J., Spangler, W. D., & Bass, B. M. (1993). Transformational leadership and performance: A longitudinal investigation. *Leadership Quarterly*, 4, 81-102.
- Yukl, G. A., (1989). *Leadership in organizations* (2nd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Yukl, G. A. (1994). *Leadership in organizations* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Yukl, G. A., & Van Fleet, D. D. (1992). Theory and research on leadership in organizations. In M. Dunnette & L. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 3). Palo Alto, CA: Consulting Psychologists Press.
- Yukl, G. A., Wall, S., & Lepsinger, R. (1990). Preliminary report on the validation of the management practices survey. In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership*. West Orange, NJ: Leadership Library of America.
- Zaccaro, S. J. (1994). *Senior leadership: An annotated bibliography of research supported by the Army Research Institute*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Zaccaro, S. J., (1996). *Social complexity and the competencies required for effective military leadership*. Paper presented at the Army Leadership Conference, Chicago, Illinois, March 27-29th.
- Zaccaro, S. J., Foti, R. J., & Kenny, D. A. (1991). Self-monitoring and trait-based variance in leadership: An investigation of leader flexibility across multiple group situations. *Journal of Applied Psychology*, 76, 308-315.
- Zaccaro, S. J., Gilbert, J. A., Thor, K. K., & Mumford, M. D. (1991). Leadership and social intelligence: Linking social perceptiveness and behavioral flexibility to leader effectiveness. *Leadership Quarterly*, 2, 317-331.
- Zaccaro, S. J., Marks, M., O'Connor-Boes, J., & Costanza, D. (1995). *The nature and assessment of leader mental models* (MRI Report 95-3). Bethesda, MD: Management Research Institute.

- Zaccaro, S. J., Mumford, M. D., Marks, M., Connelly, M. S., Threlfall, K. V., Gilbert, J., & Fleishman, E. A. (1996). *Cognitive and temperament determinants of Army leadership* (MRI Tech. Rep. for U.S. Army Research Institute for the Behavioral and Social Sciences). Bethesda, MD: Management Research Institute, Inc.
- Zaccaro, S. J., Zazanis, M. M., Diana, M., & Gilbert, J. A. (1995). *Investigation of a background data measure of social intelligence* (Tech. Rep.). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
- Zajac, E. J. (1990). CEO selection, compensation, and firm performance: A theoretical integration and empirical analysis. *Strategic Management Journal*, 11, 217-230.
- Zsambok, C. E. (1993a). *Advanced team decision making: A model and training implications* (ARI Research Note 95-02). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A289 855)
- Zsambok, C. E. (1993b). Advanced team decision making in C² settings. *JDL Proceeding*.
- Zukin, L. (1996). *Conceptual and empirical research on top management teams: An annotated bibliography*. Fairfax, VA: Center for Behavioral and Cognitive Studies, George Mason University.
- Zukin, L. B., Cooke, A. E., & McGee, M. (1996, March). *Using MBTI preferences to predict strategic leadership performance*. Paper presented at the 17th annual IOOB Conference, Toledo, OH.

Appendix A

An Annotated Bibliography of Senior Leadership Research Sponsored by the U.S. Army Research Institute for the Behavioral and Social Sciences

An Annotated Bibliography of Senior Leadership Research Sponsored by the U.S. Army Research Institute for the Behavioral and Social Sciences¹

Baker, J. D., Harris, P. A., & Lucas, K. W. (1987). *Industrial simulation games for executive development: Review of the literature and implications for military implications* (ARI Res. Rep. 1507). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A209 953)

A computerized literature search was conducted to examine the use of simulation games as an executive development tool. This review indicated that simulation games are widely used in industry but typically applied to lower and mid-level managers. Thus, the applicability of simulations to executive development has not been sufficiently demonstrated. Also, there were little evaluation data regarding the benefits of simulations for learning. The authors offer a number of design principles derived from this literature to be considered in further research and development of Army executive development simulation tools (1/4).

¹ The numbers in parentheses refer to the parameter codes assigned to each research product. The first number refers to type of study (1 = literature review, 2 = theoretical/conceptual piece, 3 = empirical study, 4 = instructional guide). The letter after this number refers to the methodology used if the product was an empirical study (a = experimental, b = correlational, c = survey, d = interview). The second number refers to the research themes covered in the study (1 = the nature of senior leadership work and performance requirements; 2 = individual knowledge, skills, abilities, and other characteristics associated with effective senior leadership; 3 = measurement issues; 4 = senior leadership development and training).

Barber, H., & Jacobs, T. O. (1993). *Strategic leadership conference proceedings*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

In February of 1991, the Strategic Leadership Technical Area (SLTA) at ARI and U.S. Army War College sponsored a conference on strategic leadership. This book contains the proceedings from that conference. Speakers included Generals Maxwell Thurman, Edward Meyer, Louis Menetrey, and Gordon Sullivan. Also, John D. Rittenhouse, David Campbell, T. Owen Jacobs, and Calhoun Wick presented at this conference. Presentations focused on (a) the requirements and environment of strategic leadership, (b) the competencies that facilitate such leadership, and (c) the development of these competencies (2/1,2,4).

Department of the Army (1987). *Executive leadership (AR 600-80)*. Washington, DC: U.S. Govt. Printing Office (see also the special text published for use at the U.S. Army War College).

This pamphlet is an instructional guide that presents information about the nature of executive leadership in the Army, the role and responsibilities of Army executives, the competencies associated with successful executive leadership, principles of organizational design to facilitate the work of executives, and leader development principles directed at the development of subordinates. The material in this pamphlet was developed from in-depth interviews with three- and four-star general officers (see Harris & Lucas, 1991; Jaques, Clement, Rigby, & Jacobs, 1986, in this bibliography). Also, a version of this pamphlet was prepared as a special text or courseware for use at the U.S. Army War College (4/1,2,4).

Department of the Army (in press). *Strategic leadership (new Field Manual 22-103)*. Washington, DC: U.S. Govt. Printing Office.

This field manual describes the tasks, environment, and competencies associated with strategic leadership in the Army. It also defines strategic vision and describes organizational culture

which is managed by strategic leaders. This instructional guide was derived from prior research conducted by the Strategic Leadership Technical Area at ARI (4/1,2).

Geiwitz, J. (1993). *A conceptual model of metacognitive skills.*
Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

This study examines the likely metacognitive skills possessed by successful executives. These skills were defined as "abilities to monitor and direct the operation of cognitive skills to obtain the greatest possible success" (p. 1), possessed by successful executives. Several theories of metacognitive skills are reviewed. The author then discusses ten such skills. These are the detection of a problem, representation of a problem, selection of a problem solving method, strategic application of problem-solving methods, evaluation of solution candidates, recognition of errors, resource allocation, temporal monitoring, social monitoring, and executive monitoring. Geiwitz integrates these skills into a model of how metacognitive skills influence technical problem solving. The paper concludes with a discussion of the training and assessment of metacognitive skills (2/2).

Harris, P., & Lucas, K. W. (1991). *Executive leadership: Requisite skills and developmental process for three- and four-star assignments (ARI Research Note 94-28).*
Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A285 499)

The authors interviewed 8 four-star and 33 three-star general officers to determine the nature of senior leadership in the Army and the requisite skills for such assignments. As suggested by Stratified Systems Theory, work by these general officers was characterized by multiple informal and formal reporting channels, an external orientation, and long planning time frames (with longer time spans for 4 star versus 3-star general officers). The major requisite knowledge and skills that were identified from the interviews included knowledge of the various national and international constituencies with whom the general officers

were required to interact, consensus building and collegial relationship skills, envisioning, and abstract thinking. The authors also reviewed the developmental experiences of general officers (3d/1,2,4).

Haythorn, W. W., Kimmel, M., & Steinberg, A. G. (1985). Senior leaders on the future battlefield. In J. G. Hunt & J. D. Blair (eds.), *Leadership on the future battlefield*. Washington, DC: Pergamon-Brassey's.

The authors summarize the results of a review of the literature on senior leadership. A search of this literature yielded 135 contributions. Senior leadership was depicted as involving decision making and problem solving, interpersonal dynamics, extensive boundary spanning activities, and activities related to organizational planning and structuring. The authors also reviewed a number of studies specifying a number of senior leadership competencies (1/1,2).

Hunt, J. G., Osborn, R. N., & Martin, H. J. (1981). *A multiple influence model of leadership* (Tech. Rep. No. 520).
Alexandria, VA: U.S. Army Research Institute.(AD A128 679)

This research examined discretionary leadership, defined as influence beyond that which is required by the role. Such leadership was proposed to be elicited by increases in environmental, structural, and contextual complexity. Measures of environmental conditions, contextual variables, structural variables, discretionary and required leadership, group and task variables, and outcome criteria were administered to noncommissioned and commissioned officers (ranging to lieutenant colonels) from 75 Army telecommunications centers. Canonical correlation analyses indicated that discretionary leadership was significantly associated with structural complexity, but not with environmental and contextual complexity. Also, discretionary leadership was correlated with performance and employee maintenance measures (e.g., job satisfaction, intent to leave). A series of moderated regression analyses indicated that a fit between discretionary behavior and levels of environmental, contextual, and structural complexity

explained significant unique variance in the criteria. These findings suggest support for the multiple influence model of leadership. The authors discuss implications for leader training design in the final sections of this report (3b/1).

Industrial College of the Armed Forces (1994). *A guide to the Strategic Leader Development Inventory.* Washington DC: Industrial College of the Armed Forces.

This monograph is an instructional guide to the Strategic Leader Development Inventory (SLDI) for use at the Industrial College of the Armed Forces. The SLDI is an instrument that is administered to the target leader as well as to his or her superiors, peers, and subordinates. It examines a leader's (or potential leader's) strength and weaknesses on 15 strategic leadership factors. This guide presents the theoretical foundations and empirical support for the SLDI, a description of the factors themselves, the requirements of strategic performance, and information on how to interpret feedback from the SLDI (4/2,3).

Jacobs, T. O. (1983). Cognitive behavior and information processing under conditions of uncertainty. In R. F. Williams & R. D. Abeyta (eds.), *Management of risk and uncertainty in systems acquisition: Proceedings of the defense risk and uncertainty workshop.* Fort Belvoir, VA: Army Procurement Research Office.

The author reviews the literature on decision making under conditions of uncertainty, particularly by senior executives. This review indicates that senior executives engage in complex decision making characterized by (a) uncertainty, defined as situations in which possible outcomes are known, but not the probabilities associated with each outcome, and (b) information richness, or the information capacity of data sources. Senior leadership under such conditions is facilitated by an organizational form or structure that is suited to the information processing needs of such leaders, and by the cognitive skills of the leader (1/1).

Jacobs, T. O. (1985). The air-land battle and leadership requirements. In J. G. Hunt & J. D. Blair (Eds.), *Leadership on the future battlefield*. Washington, DC: Pergamon-Brassey's.

Future battlefield conditions are likely to be even more complex and uncertain than before because of three factors—increased lethality of current and future weapons systems, increased capacity for more rapid battlefield mobility, and increased battlefield fluidity. Given these and other characteristics that will characterize future battle conditions, the author specifies a number of individual qualities required of future Army leaders. These include complex thinking skills, a frame of reference regarding the operating rule system, initiative and foresight, technical competence, cohesion generation skills, capacity for autonomous action, flexibility and adaptability, capacity for innovative experimentation; ability to create an appropriate risk-taking environment for subordinate officers, and knowledge of power and politics (2/1,2).

Jacobs, T. O., & Jaques E. (1987). Leadership in complex systems. In J. A. Zeidner (Ed.), *Human productivity enhancement, Vol. 2, Organizations, personnel, and decision making* (pp. 7-65). New York: Praeger.

A central premise of this chapter is that prior leadership theories were limited in that they tended to focus primarily on interpersonal influence and on leadership at lower organizational levels. In contrast, the authors offer a theory of organizational leadership that is based on the perspective of organizations as bureaucratic structures having seven levels or strata. Each stratum specifies a set of critical tasks that must be completed by leaders at that level in order for them to be effective. Each stratum is characterized by greater complexity than the one below it. The seven strata are also characterized by different time spans in terms of work and planning focuses that range from 3 months (strata I and II) to 20 years (strata VII). These strata are organized further into three domains, specifically production (strata I, II, and III), organizational (strata IV and V), and systems (strata VI and VII). The authors propose

skill requirements corresponding to the different levels of organizational task requirements. They also offer a set of basic constructs that specify the criteria for leadership effectiveness across organizational levels as well as for understanding leader development across these levels (2/1,2).

Jacobs, T. O., & Jaques E. (1990). Military executive leadership.
In K. E. Clark & M. B. Clark (Eds.), *Measures of leadership*.
Greensboro: Center for Creative Leadership.

This paper presents the theory of organizational leadership proposed by Jacobs and Jaques (1987). It also presents the results of two studies that provide support for this theory (see Harris & Lucas, 1991; Jaques, Clement, Rigby, & Jacobs, 1986; and Stamp, 1988 in this bibliography) (2/1,2,3).

Jacobs, T. O., & Jaques E. (1991). Executive leadership. In R. Gal & D. Mangelsdorf (Eds.), *Handbook of military psychology*. Chichester, UK: Wiley & Sons.

The authors present the theory of organizational leadership offered by Jacobs and Jaques (1987) and the results of interviews with three- and four-star general officers (see Harris and Lucas, 1991; Jaques, Clement, Rigby, & Jacobs, 1986) that support premises from this theory. They also present a theory of military executive development that is derived from the aforementioned leadership theory. Successful executive development is grounded in the growth of the cognitive capacities necessary to facilitate performance in the increasing complex environments that characterize top organizational levels. Thus, such development depends upon an individual's capacity to develop requisite frames of reference, his or her proclivity to do the work required in this development, and exposure to relevant developmental opportunities (2/1,2,4).

Jacobs, T. O., & Lewis, P. (1992). Leadership requirements in stratified systems. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational perspective* (pp. 15-25).

The authors present an overview of Stratified Systems Theory (SST; see Jacobs & Jaques, 1987) and Jaques (1986) in this bibliography. They discuss the requirement for leaders to address greater complexity at higher organizational levels and the cognitive and metacognitive skills associated with individual cognitive complexity. They conclude with a list of unresolved issues regarding SST (2/1,2).

Jaques, E. (1986). The development of intellectual capability: A discussion of Stratified Systems Theory. *Journal of Applied Behavioral Science, 22*, 361-384.

Jaques describes the concepts of Stratified Systems Theory (SST) and the development of cognitive and intellectual capability. Organizational work is divided into seven strata based upon time spans or horizons required by the work. An individual's cognitive power refers to the maximum time span he or she is able to work with. Jaques indicates that different strata require the following cognitive functions: concrete shaping (stratum I), task definition (stratum II), task extrapolation (stratum III), transforming systems (stratum IV), shaping whole systems (stratum V), defining whole systems in the world-wide environment (stratum VI), and extrapolative development of whole systems (stratum VII). He presents a "quintave" theory of cognitive development suggesting that four cognitive functions, shaping, defining, extrapolation, and transforming, occur repeatedly in increasingly more complex environments. Jaques then examines the maturation of individual cognitive power and posits maturation curves based on an individual's increasing potential to complete the aforementioned cognitive functions. This work presents the basis for future theoretical and empirical work on SST (2/1,2).

Jaques, E. (1990). Three studies in Stratified Systems Theory.
Appended to E. Jaques & G. Stamp, *Development of stratified systems theory for possible implementation in the U.S. Army* (ARI Research Note 90-24). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A226 910)

The author reviews the results of three prior studies that provide support for Stratified Systems Theory. The first study (Richardson, 1971) examined the proposed relationship between time span of discretion, as reported by a person's supervisor, and the job incumbents' felt-fair pay. The results, from 180 respondents and their supervisors at multiple organizational levels at Honeywell Corporation, indicated that time span discretion was correlated .86 with felt-fair pair and .74 with actual pay. The second study (Homa, 1967) demonstrated in a sample of 179 men that job incumbents were aware of their level of work-related capacity, as well as the appropriateness of their work assignments and the fairness of their pay relative to that capacity. Further, this study supported the hypothesis that a regular pattern existed in the growth of individual capacity over time. The last study (Kohler, 1986) examined longitudinal data (10 - 20 yrs) from individuals on time span levels, perceived pay fairness, and judgements of the appropriate level of employment. The data supported the capability progression hypothesis derived from SST. Jaques argues that these three studies provide systematic support for hypotheses based on SST (1/1).

Jaques, E., Clement, S., Rigby, C., & Jacobs, T. O. (1986). *Senior leadership requirements at the executive level* (ARI Research Report 1420). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD B103 760)

The authors summarize their findings from interviews with 68 senior military (3 and 4 star general officers) and civilian (SES) executives. The purpose of this research was (a) to characterize work and role requirements for executives; (b) specify the knowledge, skills, abilities, and other competencies and qualities necessary to address these requirements; (c)

evaluate the developmental processes and events experienced by the executives before attaining their position; and (d) test Jaques's Stratified Systems Theory (SST). Military executive work was characterized primarily by joint command, an international perspective, political interactions and negotiations, resource acquisition and logistics, diffusion of command, and collegiality. SES work was observed as the equivalent of that of 2 star general officers. Civilian executives provide greater specialization and continuity than is characteristic of military executives. Senior leadership competencies included high level cognitive capability, military, logistical, political, and international knowledge, as well as skills in combat, negotiation, persuasion, collegial relations, culture building, organizational engineering, forces structuring, and planning and complex problem solving. Significant developmental processes experienced by general officers included coaching and mentoring, formal schooling, instructor assignments to Army schools, assignments requiring work significantly above that of their own rank. Interviewees reported a need for higher level and more extensive development experiences for military and SES executives. The data summarized in this report supported derivations from Stratified Systems Theory regarding the nature of work at the topmost organizational levels and the individual competencies necessary to complete such work. The authors concluded with several prescriptions regarding leader performance appraisal and senior leadership developmental opportunities (3d/1,2,4).

Jaques, E., & Stamp, G. (1990). *Development of stratified systems theory for possible implementation in the U.S. Army* (ARI Res. Note 90-74). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
(AD A226 910)

The authors review the results of a three year research program sponsored by ARI on the development of Stratified Systems Theory (SST) and its application to understanding Army executive leadership. This program produced output regarding the organizational structuring of the Army (see Rigby & Harris (1987) in this bibliography), the nature of senior leadership work

in the Army (see Jacobs & Jaques, 1987; Jaques, Clement, Rigby, & Jacobs, 1986), the assessment of officer potential (see Stamp, 1986, 1988), and theoretical development of SST (see Jaques, 1990; Stamp, 1990). Three studies are appended to this report (Jaques, 1990; Stamp, 1988, 1990) and are reported elsewhere in this bibliography (1/1,2,3).

Lewis, P. (1993). *Career Path Appreciation (CPA) data reduction and analysis* (ARI Tech. Rep. 983). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A273 225)

This is a psychometric examination of the Career Path Appreciation, a measure designed to assess an individual's conceptual capacity. CPA interviews were conducted with 148 Army officers at the U.S. Army War College. Interrater reliability with two raters was .81. Also, two different ratings of conceptual thinking skills by War College instructors were correlated with scores on the CPA ($r = .57$ and $.51$). Finally, Lewis found that combining scores from portions of the CPA (i.e., the Phrases "Most" average and the Symbols total cards sorted) produced an psychometrically acceptable objective approach to scoring the CPA. The results of this study provide overall psychometric support for the CPA (3b/3).

Lewis, P. M. (1995). *Conceptual capacity and officer effectiveness*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

The purpose of this study was to assess the psychometric qualities of the Career Path Appreciation technique to assess conceptual capacity. The author interviewed, rated and surveyed 44 students attending either the Army War College or the Industrial College of the Armed Forces. He reported an interrater reliability (with two raters) coefficient of .81 from this sample. He also found that CPA scores were significantly correlated with Kegan's (1982) breadth of perspective measure, strategic thinking skill, and general officer potential, although the correlations were generally modest for convergent validity coefficients (rs ranged from .23 to .57). CPA scores were not

correlated with peer popularity, or with the extraversion-introversion and feeling-thinking dimensions of the MBTI. Correlations with Kirton's (1978) Adaptation-Innovation scale and the intuiting-sensing scale of the MBTI were high for the purposes of discriminant validity. These data provide strong evidence for reliability of the CPA but mixed evidence for its construct validity (3b,d/3).

Lewis, P., & Jacobs, T. O. (1992). Individual differences in strategic leadership capacity: A constructive/development view. In R. L. Phillips & J. G. Hunt (Eds.), *Strategic leadership: A multiorganizational perspective* (pp. 121-137).

This chapter in Phillips and Hunt (1992) examines conceptual capacity, defined as "a broad set of 'constructive' capacities that include the capacity for integration, abstraction, independent thought, and the use of broad and complex frames of reference" (p. 122), as an important attribute distinguishing successful from unsuccessful strategic leaders. The authors distinguish between leadership styles and conceptual capacities by specifying the latter as the degree of sophistication in an individual's organization of his or her experiences. They then present two theories (Jaques & Clement, 1991; Kegan, 1982) regarding individual differences in conceptual capacity. Both theories offer a hierarchical organization of increasingly complex conceptual capacities. Kegan emphasizes an increasing ability to apply an independent frame of reference or perspective to one's work experiences, while Jaques denotes an ability to think using abstract conceptualization, particularly the ability to think in terms of "parallel processing." The authors present preliminary research with officers at the U.S. Army War College and the Industrial College of the Armed Forces, in which measures based on these theories were applied. The officers demonstrated various levels of conceptual capacity; further, the measure of breadth of perspective, based on Kegan's work, was correlated .59 with Jaques' measure of work capacity. Implications for executive selection, training, and development are presented in the final sections of this chapter (2/2).

Lucas, K. W., Harris, P. & Stewart, S. R. (1988). *Training technology for the operational level of war* (ARI Res. Rep. 1505). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A213 219)

The purpose of research described in this report was to (a) seek a relationship between executive skills as suggested by Jacobs and Jaques (1987) and the leadership requirements at the operational level of war; (b) develop performance objectives to use as training criteria; (c) examine the Joint Exercise Support System (JESS) as a measure of executive performance in the operational level of war; and (d) explore a systems approach to executive training in the Army. A review of Army training and doctrine literature suggested that successful performance in operational combat environments involved a future focus, reducing uncertainty, understanding the enemy's decision process, shaping the battlefield, and synchronization. These factors suggest three sets of executive skills: cognitive/conceptual (e.g., systems understanding, envisioning/anticipating, proactive thinking, scanning, problem formulation, reflective thought, personal stamina), technical (e.g., system and subsystem development, interdependencies, technological understanding) and interpersonal (e.g., organizational representation, understanding people, communications). The authors suggest that one principle of AirLand battle, synchronization, may act as a key operational performance measure. The JESS was observed as a training environment that incorporated synchronization in its requirements. However, the JESS was found to be insufficient as an executive/operational level development training system because it did not enhance the cognitive skills underlying synchronization. In the final sections, the authors describe the requirements of a systems approach to executive training in the operational level of war (2/4).

Lucas, K. W., & Markessini, J. (1993). *Senior leadership in a changing world order: Requisite skills for U.S. Army one-and two-star assignments* (ARI Tech. Rep. 976). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A269 891)

The purpose of this research was to examine the performance requirements, skills, and developmental experiences of one- and two-star generals. Hypotheses for this study were derived from Stratified Systems Theory (SST). Forty-two brigadier and twenty-six major generals were interviewed regarding their specific position requirements and tasks and the developmental needs of future senior leaders. Results from an analysis of the interview data indicated that one- and two-star positions in the army supported the premises of SST regarding successful work requirements. Specifically, two-star general officers had less well-defined reporting channels than officers at lower organizational levels, but more direct than those of three- and four-star generals. Likewise, the planning time frame was shorter for these officers than for more senior officers. The required knowledge and skills revealed in the interviews included cognitive skills (mental mapping, problem management, planning / envisioning), cognitive skills / personality traits (dealing with uncertainty / risk taking, appropriate exertion of control), communication / interpersonal (networking, consensus building, getting feedback, use of communication technology, effective interface with the external environment, and communication skills), and resource management (personnel and materiel). Interviewees cited training and development needs in the areas of military arts (e.g., training in the operational level of war), and cognitive, communication, and resource management skills. The authors argued that these findings support predictions from SST (3d/1,2,4).

Markessini, J. (1991). *Executive leadership in a changing world order: Requisite cognitive skills* (ARI Res. Note 95-36). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

A preliminary taxonomy of higher-order cognitive skills underlying executive work was developed in part from Stratified Systems Theory. This scheme contained four skills: mapping ability, problem management/solution, long-term abstract planning, and creative thinking. Markessini then conducted a review of the literature to identify theories, models, and taxonomies of cognitive processes, skills and abilities. The findings of this review with respect to the preliminary taxonomy is that substantial representation of mapping ability, problem management/solution, and creative thinking was found in prior research. Long range planning was not widely cited; however, Markessini retained this task/skill because interviews with general officers indicated it to be a key requirement. The four skills were ordered in terms of progression of difficulty as mapping ability, problem management/solution, long-term planning, and creative thinking (1/2).

Markessini, J. (1991). *Executive leadership in a changing world order: Requisite cognitive skills. A taxonomy of cognitive capabilities for executives*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Markessini presents four generic tasks of executives: mapping ability, problem management, long term planning, and innovation/creative thinking. In subsequent sections of this report (a) each generic ability is defined, (b) its underlying process are specified further, (c) the higher order component cognitive skills associated with each generic task were specified, and (d) key individual difference that are linked to the generic tasks are identified. Also, each task is tied to executive performance. This report includes an analysis of interview data from 33 three- and 8 four-star generals that indicate substantial awareness of key cognitive and metacognitive skills as performance requirements (3d/2).

Markessini, J., Lucas, K. W., Chandler, N., & Jacobs, T. O. (1994). *Executive Leadership: Requisite skills and developmental processes for the U.S. Army Civilian Executives* (ARI Res. Note 94-26). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A284 127)

The authors interviewed 27 members of the Executive Service and Senior Executive Service to determine the nature and requirements of executive leadership in the civilian sector and to compare responses of these executives to data from interviews conducted with Army General Officers (see Harris & Lucas, 1991, and Lucas & Markessini, 1993). The results of the interviews indicated that performance requirements were generally comparable for both civilian executives and General Officers ; this work corresponded to the level prescribed by Stratified Systems Theory. Civilian executives indicated fewer reporting channels. Also, civilian executives reported less need for international understanding, and risk-tasking and innovation skills than their military counterparts. Alternatively, they reported a greater need for consensus-building skills (3d/1,2,4).

McIntyre, R. M., Jordan, P., Mergeb, C., Hamil, L., & Jacobs, T. O. (1993). *The construct validity of the CPA: Report on three investigations*. Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

Three studies were conducted to assess the construct validity of the Career Path Appreciation (CPA) measure. In study 1, 87 graduate students completed the CPA and measures of creativity, achievement, and problem solving ability. The CPA was correlated with the measure of creativity and somewhat with problem solving ability, but not achievement. In study 2, 98 undergraduate students completed measures of career development decision making, preferred occupational complexity, learning styles/cognitive complexity, intelligence, and creativity, as well as the CPA. Correlational analyses indicated partial associations between the CPA and career decision making skill and intelligence. The CPA was also significantly associated with creativity, and learning

styles/cognitive complexity. In the final study, 100 graduate and undergraduate students completed the CPA and measures of neuroticism, extraversion, openness, agreeableness, and conscientiousness, as well as the Meyers-Briggs Type Indicator and the Culture Fair Intelligence Test. Results show that the CPA was negatively correlated with neuroticism and positively correlated with openness, and the Meyers-Briggs dimensions of intuiting and perceiving. Taken together, these results show the CPA to be most strongly associated with measures of creativity. The authors conclude by specifying several future research directions (3b/3).

Mumford, M. D. (1986). *Leadership in the organizational context: A conceptual approach and its application* (ARI Res. Note 86-22). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A168 849)

Mumford examines the literature on organizational leadership and notes the lack of a clear theoretical conception that can provide the framework for efforts in leader identification and development. He offers a definition of leadership as actions taken by the leader role incumbent to facilitate organizational effectiveness and adaptation. This suggests that organizational leadership involves high level discretionary problem solving. As such the author proposes a set of 12 generic problem solving skills that may be used to develop systems for the identification and development of leaders. The last section of the paper describes some potential leader identification and development strategies based on this approach (2/1,2,4).

Mumford, M. D., Baughman, W. A., Supinski, Costanza, D. P., & Threlfall, K. V. (1993). *Cognitive and metacognitive skill development: Alternative methods for predicting leadership potential*. Bethesda, MD: Management Research Institute.

The purpose of this study was (a) to develop computerized measures of problem solving skills hypothesized as necessary for leaders to solve novel and ill-defined organizational problems

and (b) to propose a computer-assisted training program for the development of these skills. The targeted skills were problem construction, information encoding, category search and specification, category combination, and wisdom.

Computer-based measures of these skills were administered to 127 undergraduates who also completed various problem solving exercises. Problem solving skills yielded multiple Rs in the range of .40 to .60. In a second sample of 161 undergraduate students, individuals who participated in a computer-assisted training program designed to assess and enhance these problem solving skills showed improvement in their performance on novel and ill-defined problems. The authors suggested that these findings point to a cost effective means of assessing and developing key leader problem solving skills (3a/4)

Mumford, M. D., Yarkin-Levin, K., Korotkin, A. L., Wallis, M. R., & Marshall-Mies, J. (1986). *Characteristics relevant to performance as an Army leader: Knowledge, skills, aptitudes, other characteristics and generic skills* (ARI Res. Note 86-24). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A169 765)

The authors reviewed the research literature on individual differences, management, leadership, and social psychology as well as lists of army officer tasks to identify potential knowledge, skills, abilities, and other characteristics (KSAOs) associated with Army leadership performance. After definitions were developed for each KSAO, a panel of subject matter experts (i.e., retired army colonels) reviewed each one for its significant impact on leadership effectiveness, given the demands facing Army leaders. This effort, combined with other reviews, produced a taxonomy specifying required knowledge (e.g., military tactics, military strategy, weapons systems), cognitive abilities (inductive and deductive reasoning, decision making, information evaluation), physical ability, and other characteristics (judgement, self-confidence, initiative, adaptability). The authors also present a generic skills taxonomy that incorporates skills related to successful problem solving. These include monitoring and assessment of goal relevant cues,

evaluation of discrepancy importance, resource allocation, problem definition, evaluation of problem solvability, selection of solution components, information encoding, coordination and comparison, generation of alternative solutions, solution implementation, and monitoring of solution implementation and outcomes. The authors conclude with a consideration of the applied implications of these taxonomies (2/2).

Mumford, M. D., Zaccaro, S. J., Harding, F. D., Fleishman, E. A., & Reiter-Palmon, R. (1993). *Cognitive and temperament predictors of executive ability: Principles for developing leadership capacity* (ARI Tech. Rep. 977). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A267 589)

The premise of this work is that organizational leadership can be viewed as discretionary problem solving in ill-defined or novel domains. Accordingly, the authors offered a taxonomy of leadership behavior containing four superordinate dimensions (information search and structuring, information use in problem solving, managing personnel resources, and managing material resources) and 13 subordinate dimensions. Three validation studies of this taxonomy are reported. This taxonomy was used to specify 65 cognitive and temperament predictors of executive ability. These qualities were organized into 11 categories: general cognitive intelligence, creativity, crystallized cognitive skills, adaptability/ego resiliency, openness/curiosity, self-awareness, achievement, need for dominance, commitment to social systems, practical intelligence, and social intelligence. A model relating these skills to leader performance was also specified. Two studies were described that supported the validity of this taxonomy of leader characteristics. This report also describes a theory of leader development that emphasizes the changing nature of leader roles at successively higher organizational levels as well as changing skill requirements. Finally, background data and other measures of the specified cognitive and temperament leader characteristics were proposed (2/1,2,3,4).

Mumford, M. D., Zaccaro, S. J., Harding, F. D., & Fleishman, E.

A. (1994). *The thinking leader: Developing leaders for a more complex world.* Bethesda, MD: Management Research Institute.

Measures of the cognitive and temperament predictors of executive leadership effectiveness that were specified by Mumford, Zaccaro, Harding, Fleishman, and Reiter-Palmon (1993) were administered to 1,807 officers ranging in rank from 2nd lieutenant to colonel. The measured predictors were knowledge and expertise, understanding of solution characteristics, problem solving skills, wisdom, practical intelligence, social intelligence, verbal reasoning skills, divergent thinking, crystallized cognitive ability, achievement motives, dominance, social commitment, adaptability, self-awareness, self-control, openness to experience, and the Meyers-Briggs Type Indicator. Criterion measures were rated performance on a series of open-ended problem solving measures, critical incident performance, manifest leader achievement, and attained rank. Officers also provided information on their career experiences that may have contributed to the development of leader skills. Regression analyses indicated that complex creative thinking skills, attention to solution characteristics, and wisdom were the strongest predictors of leader performance. Analyses comparing high performing junior and senior officers suggested that more concrete performance skills were developed early in the officer's career, while more complex skills emerged later on. The emergence of these skills was conditioned upon more basic abilities such as divergent thinking, responsibility, and achievement motivation as well as on the nature of assignments and other career events experienced by the officer. The implications for leader training, selection, and development were discussed (3b/2,3,4).

Pence, E. C., Welp, R. L., & Stenstrom, D. J. (1990). *A measurement concept for assessing corps performance* (ARI Res. Note 90-138). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A228 275)

This paper presents a measurement system developed to assess corps performance in the REDCOM Joint Exercise Simulation System (JESS). The authors interviewed subject matter experts and reviewed Army doctrinal material to derive the objectives for corps-level organizations. They also reviewed these materials to derive appropriate organizational outcomes and products. These activities lead to the development of (a) a corps performance model; (b) a measurement system reflecting the performance model; and (c) feedback system that provides results of the measurement system to participants. The authors also used an analysis of the Inchon Landing Operation in the Korean War to provide an initial validation of the synchronization concept that was the basis for their performance measurement system. This analysis indicated support for the viability of the proposed measurement system (2/3).

Phillips, R. L., & Hunt, J. G. (1992). *Strategic leadership: A multiorganizational-level perspective*. Westport, CT: Quorum.

This book presents contributions made by the chapter authors at a conference on strategic leadership sponsored by the U.S. Army Research Institute and the Army War College. The point of departure for the conference, and therefore for the book, was Jaques's Stratified Systems Theory. The 16 chapters are divided into 5 sections, titled "Setting the Stage", "Environment, Strategy and Structure", "Leadership Capabilities and Development", "Temporality and Dynamic Change Processes", and "Application and Concluding Commentary." The chapters are theoretical/conceptual in nature and, as a group, cover 8 cross-cutting themes. These are (a) organizations as hierarchies, (b) critical tasks, managerial work, (c) capacity, skills, competencies, behaviors, etc., (d) transformational, charismatic, visionary leadership, (e) organizational culture, climate, (f) leader

succession: selection, development, training, (g) external environmental changes, and (h) temporal aspects (2/1,2,4).

Rigby, C. K., & Harris, P. (1987). *Program management offices: Structural modeling through applications of stratified systems theory* (Tech. Rep. 736). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.
(AD A181 940)

This was a study of the organizational structure of Program Management Offices (PMOs), their relationship with Major Subordinate Commands (MSCs) and the career development of individuals assigned as program managers. Data was provided from a review of prior studies on the military use of PMOs, a review of the organizational and management literature regarding the program management concept, and interviews with 61 program managers. The analysis of the data was based upon the principles of Stratified Systems Theory (SST). The interview data revealed that MSC commanders were experiencing greater complexity in their work as evidenced by more centralized decision making authority, increased information demands and reporting requirements, increased work loads, and static (instead of correspondingly increasing) resource levels. The relationships between operational and support units were ambiguous, with those units responsible for user satisfaction and deficiency-reporting the least clearly defined. In response to these observations, The authors specified the need for support staff to assist MSC commanders and PMOs. They also reported support for hypotheses derived from SST that MSC commander were operating at level V while the PMOs and supporting units operated at level IV. Other SST principles applied in this analysis included the requirement for support staff in operational spine components, alternate authority relationships for lateral support assignment, and the nature of level III PMO work., The authors used SST principles to construct two hypothetical PMO models, one a developmental-stage PMO and the other a production and fielding PMO. The application of these models was recommended on a case-by-case basis (3d/1).

Stamp, G. P. (1986). Some observations on the career paths of women. *Journal of Applied Behavioral Science*, 22, 385-396.

This study used Stratified Systems Theory to examine the influences of individual and organizational factors on the career paths of women. Key study variables were an individual's cognitive power and level of capability, as well as the organizational work requirements defined at different levels in terms of time span for completion. Stamp completed Career Path Appreciation interviews with 168 women in business organizations and the military. She discusses their responses to the CPA in terms 8 career path modes or curves reflecting the growth in an individual ability to handle increasing work time spans with assigned work responsibilities over a career span. The nature of individual capability and the likely institutional barriers are described for women operating in modes III to VIII. Stamp demonstrates that the influences of a women's capability and the nature of the barrier change across different organizational work strata (3d,1).

Stamp, G. P. (1988). *Longitudinal research into methods of assessing managerial potential* (ARI Tech. Rep. 819). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A204 878)

Stamp presents evidence for the predictive validity of a procedure used to predict the rate of growth in an individual's capability to work at increasingly complex levels. This procedure, later refined as the Career Path Appreciation (CPA) is based on the definition of organizational work offered in Stratified Systems Theory (SST). SST also predicts rates of growth in an individual's capacity to engage in increasingly complex work. The measurement procedure involves an extended interview that includes a symbol sorting task as well as questions regarding the respondents' current work, history of their careers, and their future aspirations. This procedure was refined to include a task in which respondents select phrases that best reflect how they would approach their work as well as a more structured interview protocol. Predictions of potential were made for 274 men and women working at all levels in four

multinational and international companies; the results from 182 respondents were examined in this study. After a period of 4 to 13 years, data were gathered from company records on the level of responsibility attained by an individual respondent. For a subsample of respondents, evaluations of potential were used to create growth rate curves. Analyses of the data showed a correlation between predicted rate of growth and attained level of responsibility of .79. The correlation for the sample completing the full CPA was .89. Further, the shape of growth curves was confirmed in 94% of the individuals for whom growth curves were predicted. These findings suggest that the CPA is a cost effective way of predicting potential capability to handle increasing work responsibility (3b/3).

Stamp, G. P. (1990). Notes on the development of Stratified Systems Theory and career path appreciation. Appended to E. Jaques & G. Stamp, *Development of Stratified Systems Theory for possible implementation in the U.S. Army.* Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences.

In this paper, Stamp reviews the development and evolution of Stratified Systems Theory (SST) and its main concepts. Beginning from the earliest work by Jaques, Stamp covers the emergence of the time span concept and the definition of work. She also describes organizational levels corresponding to different time spans of work as well as the development of the capacity growth curves. Five studies are summarized that provide support for SST. Finally, Stamp reviews the development and tests of Career Path Appreciation as a means of assessing an individual's potential for growth in the capacity to carry greater work responsibility as defined by SST (1/1,3).

Stewart. S. R. (1992). *Leader development training needs assessment of U.S. Army battalion commanders* (ARI Tech. Rep. 969). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A259 204)

The purpose of this study was to identify the training requirements of Army battalion commanders. Twenty-nine

battalion commanders and their immediate supervisors were interviewed regarding the strengths and weaknesses of the battalion commanders, perceived differences between company and battalion command, mentoring, and perceived personal life changes that occurred since assuming battalion command. Both strengths and weaknesses were noted in five categories: technical and tactical competence, breadth of perspective, standards setting, people orientation, self-knowledge, delegation/risk taking. The most frequently cited difference between company and battalion command was the need for greater decentralization at the higher command level.

Respondents also expressed great confusion regarding the nature of mentoring, with their responses being grouped into the categories of coaching, counseling, sponsoring, and mentoring. Key personal life changes that were mentioned included a mellowing effect and emotional maturation. Stewart concludes that leader training of battalion commanders should prepare them better for the greater complexity required in their jobs. Also, intellectual and emotional maturational processes should be the focus of leader development training (3d/4).

Stewart, S. R., & Angle, D. C. (1992). *Correlates of creative problem solving* (ARI Res. Note 93-01). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A258 720)

This study (a) examined individual differences related to creative or unstructured problem solving, and (b) evaluated a training course designed to facilitate such problem solving. One hundred and nine college students were asked to construct as high as possible a free standing structure out of index cards. They were also asked to complete three types of verbal problems. One set of problems was unstructured, while the others were more structured. Subjects completed 12 measures of various individual differences proposed to be associated with successful creative problem solving. Students were drawn from two different classes. One class ($n = 76$) was process-oriented and geared toward improving creative problem solving skills. The other class ($n = 33$) adopted a more traditional, content-oriented approach. The results of multiple regression analyses indicated

that four individual difference variables, mental rotation, preference for intuition as identified by the MBTI, preference for introversion as identified by the MBTI, and sensation seeking, accounted for 60% of the variance in the tower building task. Only the MBTI measure of preference for sensing was significantly associated with success on the verbal problems. Also, subjects in the experimental condition (i.e., students in the process-oriented course) displayed a significantly greater improvement on the building task from the pretest to the posttest than the control subjects (i.e., students in the content-oriented course). Analyses also indicated that training increased participants' tolerance for ambiguity and their appreciation for unstructured problem solving. Training also influenced older students more than younger students. The authors conclude with several research issues for further consideration (3a/2,4).

Stewart, S. R., & Hicks, J. M. (1987). *Leader development training assessment of U.S. Army Training and Doctrine Command (TRADOC) brigadier commanders* (ARI Research Report 1454). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A190 628)

This report summarized the findings from an evaluation of a leadership course offered by the Center for Creative Leadership to 25 TRADOC brigade commanders. Course participants completed a survey and an interview designed to assess the perceived value of the CCL course, how the course might be improved, and other pertinent development activities experienced by the participants. Means and standard deviations of the ratings indicated that the course was perceived as useful, particularly the elements on "Situational Leadership" and "Staff Feedback." Respondents were less likely to perceive the course as improving their abilities or providing them with significant self-insight. The most likely targets for a course such as this were reported to be battalion and brigade commanders. However, the CCL course as constituted at the time of the study was not viewed as appropriate or acceptable for wide-spread use in the Army. The authors recommended a needs assessment to developed future course content (3c,d/4).

Stewart, S. R., Kilcullen, R., & Hopkins, J. E. (1993). *Strategic Leader Development Inventory (SLDI)*. Paper presented at the annual meeting of the Military Testing Association, Williamsburg, VA.

This paper describes the development of the Strategic Leader Development Inventory (SLDI). The purpose of the SLDI is to assess the degree of an individual's skills and attributes that are associated with successful strategic leadership performance. One hundred and seventy-nine students at the U.S. Army War College (U.S.A.W.C.) indicated the behaviors characterizing the best and worst general officers and colonels they had known. Using prior empirical and theoretical research, these responses were reduced and grouped into categories of positive and negative attributes. Pilot versions of the SLDI were then developed to be self-administered as well as administered to an officer's subordinates, peers, and supervisors. These versions were then given to 434 officers at the U.S.A.W.C. and the Industrial College of the Armed Forces as well as to 1,283 subordinates, 887 peers, and 672 superiors. Responses to the SLDI were factor analyzed, revealing 5 positive attributes and four negative attributes. From these data the authors constructed a new version of the SLDI containing three broad types of factors, *conceptual skills and attributes* (conceptual flexibility, political sensibility, long term perspective, quick study/perceptive, complex understanding), *positive attributes* (empowering subordinates, strong work ethic, personal objectivity, team performance facilitation, personal toughness) and *negative attributes* (technical incompetence, explosive/abusive, arrogant/self-serving/unethical, rigid/micromanages, inaccessible). The paper concludes with a description of the computerized developmental feedback given to each respondent (3b/3).

Strait, M. J. (1991). *Executive development through asynchronous computer conferencing* (ARI Res. Rep. 1593).
Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A241 130)

Strait completed a literature review to examine the feasibility of asynchronous computer conferencing (ACC) as support technology for Army executive development. Prior research on human development and organizational leadership did not facilitate an understanding of executive leadership and development, although the work of Jaques (1976; Jacobs & Jaques, 1987) was considered promising. Research on intellectual development in college students suggested that the effectiveness of ACC depended upon it being used as a work tool, rather than just as instructional technology. While prior research on ACC supported its value for geographically dispersed training units, little evidence or prior research existed for its utility as executive development technology. Strait concludes that for ACC to facilitate executive development, it must be integrated into a leader's real work environment where meaningful challenges and growth experiences are confronted (1/4).

Zaccaro, S. J., Marks, M., O'Connor-Boes, & Costanza, D (1995).
***The nature and assessment of leader mental models* (MRI Report 95-3).** Bethesda, Md: Management Research Institute. Prepared for U. S. Army Research Institute for the Behavioral and Social Sciences.

This paper specifies three mental models used by leaders in organizational problem solving. These models encode and organize (a) a leader's generic knowledge of teams; (b) a leader's generic understanding of organizations and organizational processes; and (c) the leader's vision for the organization. Preliminary evidence for the validity of measures assessing these models was acquired from 101 military officers (ranging from 2nd lieutenant to colonel) and 50 undergraduate students. Participants completed the three mental model measures and 3 complex problem exercises. The findings were (a) military officers indicated more accurate (as determined by a priori expert judgments) team and organizational mental models than the

undergraduate students; (b) colonels reported more growth-oriented vision models than either undergraduate students or lieutenants; and (c) all three mental models were associated with the quality of solution generated in the problem exercises (3b,d/3).

Zsambok, C. E. (1993). *Advanced team decision making: A model and training implications* (ARI Research Note 95-02). Alexandria, VA: U.S. Army Research Institute for the Behavioral and Social Sciences. (AD A289 855)

The purpose of this study was to develop a training program to help officers institute effective strategic decision making in their teams. Based on prior theoretical work and observations of strategic decision making teams, Zsambok specified 10 key behaviors associated with effective team performance. The first four (defining roles and functions, engaging team members, compensating actions, and avoiding micromanagement), fostered a greater sense of team identity. Four additional behaviors fostered the team's conceptual level, or the intelligence of its problem solving and decision making actions. These were envisioning goals and plans, focusing on the time horizon and range of factors, detecting gaps and ambiguities, and achieving situation assessment by diverging and converging. The final two behaviors, adjusting team performance action, and time management, referred to team regulatory mechanisms. These behaviors were integrated into the Advanced Team Decision Making (ATDM) model. Further, a booklet and summary card describing the ATDM model were developed to be used in leader training at the U.S. Army War College and at the Industrial College of the Armed Forces (ICAF). Zsambok conducted a formative evaluation of training using the ATDM model at ICAF. Thirty-eight teams completed a survey designed to assess this model. The results indicated that the ATDM model was perceived as reflecting behaviors associated with high team performance and that learning and practicing ATDM resulted in (a) greater understanding of effective team behaviors and (b) improvements in reported team performance quality (2/4).

Zsambok, C. E., Klein, G., Kyne, M. M., & Klinger, D. W. (1992).
Advanced team decision making: A developmental model
(prepared for U.S. Army Research Institute for the
Behavioral and Social Sciences, Alexandria, VA). Fairborn,
OH: Klein Associates, Inc.

This is an instructional guide on advanced team strategic decision making to be used as part of the curriculum at the Industrial College of the Armed Forces. This booklet explains in detail the components of the Advanced Team Decision Making Model (see Zsambok, 1993). It also presents a case study of a decision making team at a senior service college. The purpose of the case study was to help trainees perceive and evaluate the application (or nonapplication) of the team behaviors and processes specified by the ATDM model (4/4).

Appendix B

An Annotated Bibliography of the Literature on Top Management Teams

by

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Summary of Parameter Codes

The numbers in parentheses after each entry refer to the parameter codes assigned to each research product. The first number refers to the type of study (1 = literature review, 2 = theoretical/conceptual, 3 = empirical). The letter after this number refers to the methodology used, if the product was an empirical study (a = experimental, b = correlational, c = survey, d = interview, e = archival). If an asterisk (*) follows a letter, it means that this research looked at TMT characteristics other than, or in addition to demographic characteristics. For example, a particular study may have examined team processes in addition to age and tenure of the team (e.g., Smith et al., 1994).

The large capital letter that is the final parameter code refers to the type of industry studied (B = banks, CE = cement, CH = chem, CO = computer, E = electronics, F = food, FU = furniture, H = higher education, HO = hospitals, I = insurance, N = natural gas, M = mixed (more than 3 industries), O = oil, R = retail sales, T = technology based, TO = tobacco, R = retail sales. Table B-1 provides a summary of the parameters coded for this research.

Table B-1. Summary of Annotated Bibliography of Top Management Team Research

TYPE OF STUDY	
Theoretical	10
Empirical	20
METHODOLOGY	
Experimental	0
Correlational	19
Survey	10
Interview	2
Archival	15
EXAMINED CHARACTERISTICS BEYOND DEMOGRAPHICS	
	5
TYPE OF INDUSTRY	
banks	3
cement	1
chemical	2
computer	3
electronics	1
food processing	3
furniture	1
higher education	3
hospitals	2
insurance	2
natural gas	3
mixed (more than 3 industries)	5
oil	1
retail sales	1
technology based	3
tobacco	1

Amason, A. C. (1996). Distinguishing the effects of functional and dysfunctional conflict on strategic decision making: Resolving the paradox for top management teams. *Academy of Management Journal, 39*, 123-148.

This study attempted to reconcile the issue over whether conflict is functional or dysfunctional for effective TMT decision making. Amason proposed that two types of conflict differentially affect four types of decision outcomes. TMT members identified, through a survey, their perceptions of the team's level of both cognitive and affective conflict. Through verbal and/or survey methods, the TMT members indicated their perceptions of the decision outcomes of quality, understanding, commitment and affective acceptance.

Findings suggest that the cognitive component of conflict leads to understanding and affective acceptance, whereas affective conflict leads to poorer decision quality and lower affective acceptance. Thus, Amason argues that conflict has two components each having distinct effects on decisions. To the degree possible, TMTs should work on increasing cognitive conflict while decreasing affective conflict so that they reach more positive decision outcomes. (3bc,3F,FU)

Bantel, K. A. (1993). Strategic clarity in banking: The role of top management team demography. *Psychological Reports, 73*, 1187-1201.

This study examined the relationship between the demographic characteristics of TMTs of retail banks and the degree to which these banks had consistent competitive tactics (strategic clarity). Taking the cognitive resource perspective, Bantel suggests that the variety of cognitive perspectives on the team will influence the decision outcomes.

Through interviews and questionnaires with 205 banks, the researcher found that banks with a clear strategy consisted of TMTs with heterogeneous education majors and functional backgrounds. Bantel argues that this cognitive diversity is beneficial to TMT decision making because it allows for variety

of perspectives and attention to sub-environments that impact the organization. (3bce,1,B)

Bantel, K. A., & Jackson, S. E. (1989). Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal, 10*, 107-124.

This study took the demographic approach to assess the relationship between TMT characteristics and innovations, in the banking industry. Bantel and Jackson point out that this approach makes the assumption that these characteristics are related to "cognitive abilities, aptitudes, and expertise," and that through these characteristics we can measure the cognitive resources of the team. The cognitive resources perspective argues that creativity will be enhanced in groups with higher levels of, and more diversity in, knowledge, abilities and perspectives.

Through archival and survey data, the authors found that innovation was greater in banks whose TMTs were more educated and had more diverse educational backgrounds. Yet, heterogeneity with regard to age, tenure and educational major did not have this effect. This finding supports the cognitive resources perspective, but not the information processing perspective which asserts that team heterogeneity creates dysfunctional conflict.

Bantel and Jackson were also interested in whether TMT characteristics were more strongly related to innovation than were CEO characteristics. They found that neither CEO age nor tenure were correlated with innovation, whereas team age and tenure were significantly correlated. Furthermore, team educational level was more strongly correlated with innovation than was CEO educational level. This supports the notion that the dominant coalition acts as a "decision-making unit" for the organization. (3bce,1,B)

Chaganti, R., & Sambharya, R. (1987). Research notes and communications: Strategic orientation and characteristics of upper management. *Strategic Management Journal, 8*, 393-401.

This article examined the relationship between TMT member outsider orientation (experience gained through firms other than the present firm) and team member functional orientation with the company's strategic orientation. Outsider individuals are thought to have a broader experience and knowledge base than those who develop within the company, and functional orientation is thought to influence how executives view a problem and therefore act upon it.

Comparisons were made through identifying TMT characteristics within three tobacco firms, each previously identified by Miles (1982) as a prospector, defender or analyzer firm (Miles & Snow, 1978). Chaganti and Sambharya found that the prospector firm had the highest proportion of outsiders, followed by the prospector firm, and then the defender firm. There were also differences among the firms in TMT functional orientation. The authors suggest that organizations match their TMT characteristics, not only with the firm's strategy, but also with the external environment. (3e,2T)

Daboub, A. J., Rasheed, A. M. A., Prien, R. L., & Gray, D. A. (1995). Top management team characteristics and corporate illegal activity. *Academy of Management Review, 20*(1), 138-170.

This article suggests that the upper echelon's perspective that management does, in fact, make a difference, should be extended to include corporate illegal activity. To consider TMT's role, we need to consider the impact of TMT's as opposed to the board of directors and the level of management in which decisions are made to behave illegally. Thus, the authors propose several relationships between TMT demography and corporate illegal activity. They suggest that the strength of expected relationships between context and corporate illegal activity is moderated by TMT factors. Rather than considering

TMT demography and context in isolation, future research on illegal activity should consider of these factors together. (2)

Drazin, R., & Kazanjian, R. K. (1993). Applying the del technique to the analysis of cross-classification data: A test of CEO succession and top management team development.
Academy of Management Journal, 36, 1374-1399.

The main focus of this study was to introduce the use of the del technique as a statistical tool for analysis of categorical data. Drazin and Kazanjian used this technique to assess the relationship between the functional composition of the TMT and the firm's stage of growth. They show that del allows the researcher to develop a prediction rule with regard to the relationship between two categorical variables. The researcher produces a row by column table with "predicted" cells (researcher's expected outcomes) and "error" (cells in which no cases are expected to occur). Del is interpreted in terms of the proportion reduction of error in knowing the specific prediction rule over not knowing the rule. The technique remains robust with small samples, and the statistic is normally distributed.

The firm's stage of growth was measured by the CEO's identification of the firm into one of the four following stages: (1) conception and development, (2) commercialization, (3) growth, (4) stability. CEO's also identified the functional areas of the TMT members. The author's found that functional relationships differ by growth stage of the firm, but that the type of relationship could be found through the del technique and not through the more traditional chi-square analysis. (3bc,T)

Dutton, J. E., & Duncan, R. B. (1987). The creation of momentum for change through the process of strategic issue diagnosis.
Strategic Management Journal, 8, 279-295.

This paper introduces a model of "Strategic Issue Diagnosis" (SID) which describes the key events that take place during top management diagnosis of vague and ill-defined events. The authors assert that differences in the way organizations respond to environmental changes are due to the way in which issues are triggered and interpreted by the decision makers. SID is

distinguished from problem identification and problem solving in that SID shows the interpretive component of the process. Dutton and Duncan suggest that SID is an iterative, cyclical process involving three major events, each influenced by the TMT's perceptions. These events are: (1) activation of diagnosis, (2) issue assessments, and (3) issue feasibility. The authors conclude with several propositions regarding TMT's interpretation of issues, TMT's belief structures, organizational resources and their effects on organizational change. (2)

Finkelstein, S. (1992). Power in top management teams: Dimensions, measurement and validation. *Academy of Management Journal*, 35(3), 505-538.

Finkelstein outlines his development and validation of a set of top management power dimensions. His study found strong support for the validity and reliability of *structural, ownership* and *prestige* power and only moderate support for *expert* power. Variables assessing managerial characteristics without including the distribution of power among top managers were not as predictive as variables adjusted for power. This finding suggests that the upper echelons theory should be extended to include the level of the member's power in the team. Furthermore, in assessing the relationship between top management and organizational performance, researchers should include both the CEO and the dominant coalition. Limiting assessment to the CEO falsely assumes that the CEO has the most power.
(3bce,CH,CO,N)

Finkelstein, S., & Hambrick, D. C. (1990). Top-management tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, 35, 484-503.

In an effort to explain why the upper echelons perspective (Hambrick & Mason, 1984) has not received consistently strong support, Finkelstein and Hambrick tested the moderating effect of managerial discretion. Managerial discretion refers to the latitude of action available to top executives. This study found that the relationship between top management tenure and

organizational outcomes (strategic persistence and conformity in strategy and performance with other firms in the industry) was, in fact, moderated by managerial discretion.

More specifically, executive team tenure was found to have a significant effect on strategy and performance, with long tenured teams following more persistent strategies. These strategies and actions conformed with the tendencies of the industry. As expected, results differed depending on the level of managerial discretion. The strongest relationships were shown in contexts that allowed managers high discretion.

The sample included only large firms, with computer industry representing high discretion, chemical by moderate discretion and natural gas as low discretion.

Limitations of this study include the possibility that relationships may differ for smaller industries. Furthermore, the type of industry may not be the most effective indicator of managerial discretion. Despite these limitations, it would be beneficial to extend the upper echelon's perspective by including this moderating variable. (3be,3,CH,CO,N)

Haleblian, J., & Finkelstein, S. (1993). Top management team size, CEO dominance and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal, 36*(4), 844-863.

This study extended the demographic approach of the relationship between TMT's and performance (return on assets, sales, and equity) by looking at the effects of CEO distribution of power and of TMT size. It also looked at the moderating role of discretion. Halebian and Finkelstein found that environmental turbulence and managerial discretion moderate the relationship between TMT size, CEO dominance, and firm performance. Large teams and teams with less dominant CEO's were more prevalent in turbulent environments in comparison to stable environments. Furthermore, they found that in low discretion industries (e.g., natural gas distribution), there was no relationship between TMT effects and performance. This finding

suggests that in low discretion environments, information processing of TMT's may be of little consequence. (2bc,CO,N)

Hambrick, D. C. (1981). Strategic awareness within top management teams. *Strategic Management Journal*, 2, 263-279.

This article sought to document the extent to which strategic awareness exists in TMTs. Strategic awareness is viewed, in this study, as the extent to which an individual manager's perception of the organizational strategy is aligned with (1) the organization's "realized" strategy, and (2) the chief executive's perception.

Consistent with models of strategy originating at the top levels of the organization, Hambrick found that there was a decline in strategic awareness as we move downward in the organization. Especially noteworthy, though, is that even at high levels of the organization (second level executives), there was a significant drop-off of strategic awareness.

Hambrick also found that the degree of strategic awareness differed across industries, suggesting that there is no universal rate of diminishing strategic awareness. Instead we find that a combination of environmental, organizational and managerial factors effect this awareness.

The findings of this study suggest that researchers would benefit by identifying through Chief Executive Officers (CEO's), rather than other executives, the organization's actual strategy. Furthermore, researchers may find greater relationships between strategy and behavior if they tap each executives perceptions rather than relying on the CEO's perceptions or on an external measure of strategy. (2bcde*,H,HO,I)

Hambrick, D. C. (1981). Environment, strategy and power within top management teams. *Administrative Science Quarterly*, 26, 253-276.

This study investigated how coping with both environment and strategy is related to power in TMT's. In Hambrick's sample of hospitals, life insurance firms and private colleges, he found

that an organization's environment affects internal power patterns.

More specifically, coping with an environmentally imposed event is positively related to power. Insurance and hospital executives had great power, aside from that imposed by their position, if they scanned the critical sectors of their environment. Furthermore, executives who went beyond their functional boundaries to scan information increased their power.

Overall, the results of this study suggest that both environment and strategy act as empirically distinct contingencies. In addition, the degree of an individual's power is related to the extent to which he/she copes with these contingencies. (2bce*,H,HO,I)

Hambrick, D. C. (1987). The top management team: Key to Strategic Success. *California Management Review*, 30, 88-108.

In this article, Hambrick proposes a framework for how general managers should assess and reshape their top management teams. Three premises underlie this framework: (1) There is no "ideal" management team; the appropriate combination of qualities depends on the context in which the team operates. (2) The general manager should think proactively about his team and not take the team talents as a given. (3) Because the ideal TMT is a function of how the manager operates, the general manager must think about his team in personal ways and in how he prefers to operate.

Hambrick's framework suggests that the internal and external context in which the team is operating should be the starting point for the process of assessing and reshaping TMT's. This task is followed by identification of the ideal team profile preferably through specifying specific qualities members need (based on the context of the team) and through the general manager's personal model of managerial success. These tasks are followed by an assessment of the existing team characteristics, narrowing areas where there are gaps and then adjustment of

context if TMT changes are unfeasible. Following Hambrick's framework is a case study illustrating his model. (2)

Hambrick, D. C. (1994). Top management groups: A conceptual integration and reconsideration of the “team” label. *Research in Organizational Behavior* (Vol. 16, pp. 171-213). Greenwich, CT: JAI Press.

Hambrick's purposes in writing this chapter were to develop a platform for future TMT research and to argue for the use of the term "top management group" rather than top management team. Furthermore, Hambrick introduces "behavioral integration" which is the degree to which the group engages in "mutual and collective interaction." He describes the "centrifugal forces" that diminish this behavioral integration.

Hambrick integrates the literature and describes distinctive attributes of the top management team which include the complexity of their task, the symbolic significance of their actions and the tendency of these groups to consist of relatively aggressive autonomous individuals. He suggests that future research on top management groups should investigate the mechanisms by which these group characteristics become reflected in organizational characteristics and that business unit top management groups would complement the almost exclusive work on corporate level top management groups. (2)

Hambrick & Mason (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193-206.

This critical article introduced the concept of *upper echelons* which states that organizational outcomes, such as strategic choices and performance levels, are partially predicted by the demographic characteristics of the top managers of the organization. Hambrick and Mason's view is contrary to the population ecologist view which asserts that top executives do not matter. Thus, they introduce a model which links the characteristics of the upper echelons to strategic choices which affect performance of the firm.

The authors do include psychological characteristics in their model, but they assert that if these characteristics hold up, then the more complex psychological phenomenon can be assessed at a later time. Furthermore, they argue that demographic dimensions are more realistic to assess at this point. (2)

Hurst, D. K., Rush, J. C., & White, R. E. (1989). Top management teams and organizational renewal. *Strategic Management Journal, 10*, 87-105.

This article goes beyond the traditional strategic management literature by introducing the Creative Management Model which refers to the characteristics and behaviors that the TMT needs for renewal. The model is based on the notion that top managers need to effectively scan the environment and appropriately act on it. The model also posits that behaviors relevant to organizational renewal are partly a function of the cognitive processes of the executive. These cognitive processes and behaviors are thought to be indicated by the top manager's Jungian/Myers-Briggs typology. The authors hypothesize that the strategy of a TMT is reflective of the team's cognitive composition; thus, as cognitive preferences vary, so, too, will strategy.

Hurst, Rush, and White argue that there is a need for this type of model, which includes the full range of human potential, to replace traditional strategic management models. Furthermore, they argue that this model has implications for the "dominant coalition," as it should include a mix of types including Intuitives, Feelers, Thinkers, and Sensors. (2)

Keck, S. L., & Tushman, M. L. (1993). Environmental and organizational context and executive team structure. *Academy of Management Journal, 36*(6), 1314-1344.

This research found that TMT demographics, and executive team context had distinct effects on inertia and change. When there are long periods between change within a the TMT's context, there is little heterogeneity and high tenure among the team. But, with longer periods of incremental change, greater stability exists. Organizations that survive dramatic changes

tend to have heterogeneous teams that display both stability and the capacity for change. The authors suggest that these patterns may be related to the level of internal cohesion and social integration among the TMT. (3be,CE)

MacGrath, R. G., MacMillan, I. C., & Tushman, M. L. (1992).

The role of executive team actions in shaping dominant designs: Towards the strategic shaping of technological progress. *Strategic Management Journal, 13*, 137-161.

This article argues that the destiny of a firm is closely linked to the evolution of the product class in the industry. Business class decisions can not be made without a strong understanding of the relationship between the firm's technological abilities and the environment. The authors highlight the specific areas where TMT's can influence the ability of the firm through setting the scope for the organization's design variations. They suggest that more work be done to learn methods executive teams use to monitor, control and reward behavior when the members design offerings do become dominant. (2)

Michel, J. G., & Hambrick, D. C. (1992). Diversification posture and top management team characteristics. *Academy of Management Journal, 35*(1), 9-37.

This research found that profiles of TMT's are associated with the level of interdependence of the firm. Interdependence refers to the degree of need for integration among constituent units. Michel and Hambrick found that teams with high interdependence had longer tenures, but they had lower tenure homogeneity than executives of low interdependent firms. The degree of social cohesion (as measured by tenure, tenure homogeneity, and functional homogeneity) and type of knowledge base within a firm's TMT were related to the degree of interdependence demanded by the firm's diversification posture. Although surprising, Michel and Hambrick found that experience in core functional areas was related to corporate performance in low interdependent firms, but negatively in high interdependent firms. (2be,M)

Murray, A. I. (1989). Top management group heterogeneity and firm performance. *Strategic Management Journal, 10*, 125-141.

This study used the term top management group (TMG) to include the “inclusive” group (executives included in the lists submitted to Dun & Bradstreet) and the “exclusive” group (the group consisting mostly of the board of directors) as the unit of analysis.

In Murray’s research on TMGs in the oil and food industry, he found that the type of industry, and thus the choice of performance variables, must be investigated before measuring the relationship between TMG characteristics and firm performance. This suggestion is due to his finding that idiosyncrasies of the firm can affect interpretation of the relationships. Industries require distinct tasks for TMGs, suggesting varying criteria for success. Furthermore, relationships differ depending on whether short or long term performance is assessed. Overall, Murray suggests that the relationship between top management characteristics and performance varies with industry, time lags and the measure of performance chosen. (2ce,F,O)

Priem, R. L. (1990). Top management team group factors, consensus, and firm performance. *Strategic Management Journal, 11*, 469-478.

This article represents a reaction to the inconsistent findings with regard to the top management consensus and firm performance relationship. Priem proposes that a curvilinear relationship exists which is moderated by environmental dynamism. More specifically, in stable environments, higher levels of TMT consensus would be associated with high performance. In dynamic environments, lower levels of consensus would be associated with high performance. Thus, for high performance in a low environmentally dynamic environment, the proposed configuration is a homogeneous, highly structured TMT with disagreement during decision making. In a high environmentally dynamic environment, a

heterogeneous, low-structured TMT, with agreement during decision making, is suggested.

Priem admits that this proposed curvilinear, moderated relationship makes for a complex theory, but it integrates the conflicting results of prior research by suggesting a contingency approach. (2)

Shank, M. E., Zeithaml, C. P., Blackburn, R. S., Boynton, A. C. (1988). Predictors of top management team environmental perception accuracy: A model and propositions. *Academy of Management Proceedings*, 37-41.

This article presents a model and propositions on the perceptual processes that TMT's use to scan the environment. While other research has focused on *accuracy* as a predictor of performance, this paper focuses on the *predictors* of the accuracy. The authors take the *information processing approach* which asserts that managerial perceptions result from a flow of information to management. This information flow is critical to organizational adaptation. Thus, group perceptions of the environment depend on the accuracy of the individual information, whether this information is shared and how it is interpreted. Group characteristics effect the processing of this information. Organizational structure, individual member scanning, TMT interactions, communication openness and individual and group characteristics are all predictors of these perceptions. (2)

Singh, H., & Harianto, F. (1989). Top management tenure, corporate ownership structure, and the magnitude of golden parachutes. *Strategic Management Journal*, 10, 143-156.

This research examines the relationship between top management tenure and compensation decisions made by the organization's board of directors. Specifically, the researchers looked at "golden parachute" contracts which involve an agreement, between the TMT and the board, regarding payments in the event of a takeover. They found that two components (number of executives covered and years of salary covered) of the golden parachute exist, each showing different predictors. The

only TMT characteristics measured in this study were average tenure and relative tenure (TMT vis-à-vis board members) with the latter showing a positive relationship with both forms of the golden parachute. (3be,M)

Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., O'Bannon, D. P., & Scully, J. A. (1994). Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly, 39*, 412-438.

The researchers in this study investigated the role of team process variables in the relationship between TMT demography and the firm performance variables of return on investment (ROI) and sales growth. Using data from 53 firms in high velocity environments, and controlling for the effects of firm size, past performance as well as industry growth rate and degree of new competitive entry, the authors found that team process variables do make a difference in firm performance. More specifically, the process variable of social integration had a positive relationship with both performance variables. The demographic variables of team size and heterogeneous experience had negative effects on the process variable of informal communication. Direct effects between demographic variables and performance were found as well. Heterogeneous experience showed a negative relationship with return on investment and heterogeneous education showed a positive relationship with both ROI and sales growth.

This research extends our understanding of top management team by focusing, not only on demographic variables, but also on team processes. The findings that process issues explain variance, above and beyond that explained by demographics, suggests the need to include process variables in our understanding of TMT's effects on performance. (3bcde*,T)

Sutcliffe, K. M. (1994). What executives notice: Accurate perceptions in top management teams. *Academy of Management Journal, 5*, 1360-1378.

This article investigated the determinants of perceptual accuracy, which is defined as "the congruence between

perceived environmental characteristics and objective environmental characteristics" (Bourgeois, 1985). The determinants Sutcliffe studied are the TMTs functional diversity, team tenure, organizational scanning activities, and performance monitoring. In addition, Sutcliffe suggested that organizational centralization and size of the firm would effect perception.

This study found that organizational scanning and centralization were strong predictors of the extent to which an executive team is effective in noticing environmental instability. Functional diversity and team tenure were predictors of executive team accuracy in noticing environmental munificence. While organizational theorists argue that accurate perceptions should be maximized, Sutcliffe asserts that inaccurate perceptions may have positive effects by enhancing innovation.
(3bc*,M)

Thomas, J. B., Shankster, L. J., & Mathieu, J. E. (1994).

Antecedents to organizational issue interpretation: The roles of single-level, cross level, and content cues. *Academy of Management Journal, 37*(5), 1252-1284.

This article represents the only article in this annotated bibliography that simultaneously looked at the individual, group and organization as the units of analyses in the assessment of managerial cognition of the environment. Thomas, Shankster, and Mathieu were able to examine the relationships of one unit while controlling for the effects of the other two.

The researchers found that these three levels of analysis differentially predicted strategic and political interpretations. Furthermore, issue content, context, and interpretive outcomes produce three distinct interpretive environments. The authors assert that managers' decisions are the result of the interaction of three variables; their personal experiences, the issues they confront, and the dynamics of the group to which they belong.
(3bce*,H)

**Wagner, W. G., Pfeffer, J., & O'Reilly, C. A. (1984).
Organizational demography and turnover in top
management groups. *Administrative Science Quarterly*, 29,
74-92.**

This research shows a relationship between TMT demographic characteristics and turnover. It is based on the notion that the structure of TMT composition affects integration which affects turnover. Similarity in age predicted turnover at the individual level of analysis. Distributions of the date the individuals entered the group predicted the proportion of the TMT that turned over.

Previous turnover research has focused on the individual as the unit of analysis focusing on commitment, job attitudes and behavioral intentions as well as economic issues. The authors suggest that the present study looks at the relationship of an individual's attributes in relation to others in the group rather than in isolation. This method, they suggest, is critical in understanding the integration of the TMT. (3be,M)

Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, 35(1), 91-121.

This study was the first to link multiple top management demographics to strategic change. Weisema and Bantel found that organizations undergoing strategic change are more often characterized by TMT's in which members are lower average age, shorter organizational tenure, higher educational level, educational specialization heterogeneity and academic training in the sciences. It is noteworthy that there was little support for demographic diversity, with the exception of the educational specialization heterogeneity.

The authors assert that demographic characteristics are an important way to measure an individual's cognitive bases because they create team abilities and tendencies which relate to decision outcomes. (3be,M)

Wiersema, M. F., & Bird, A. (1993). Organizational demography in Japanese firms: Group heterogeneity, individual dissimilarity, and top management team turnover.
Academy of Management Journal, 36(5), 996-1025.

This study extends the models that link demographic characteristics to organizational outcomes by testing demographic theory in Japanese firms. Weiserman and Bird developed a model which suggests that factors which vary across nations may moderate the relationship between TMT demography and organizational outcomes.

In their sample of 40 firms from banking, consumer electronics manufacturing, food processing, and large retail sales, the researchers found that heterogeneity of age, team tenure, and prestige of university attended were significant correlates of team turnover. These findings were stronger than those of similar studies in the U.S. The authors suggest that one major reason for this difference may be the fact that TMT's in Japan are more heterogeneous than those in the U.S. This homogeneity in Japan suggests that slight differences are more noticeable. (3be,B,E,F,R)